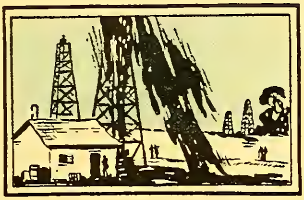
Louisiana Conservation REVIEW



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Published Quarterly by the
DEPARTMENT OF CONSERVATION

JULY
1936

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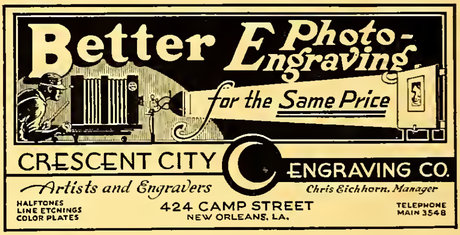

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Department of Conservation Begins Game Propagation Program

THE problem of game supply is one of constantly increasing interest and seriousness throughout North America. Everyone is now familiar with the recent disastrous history of our waterfowl. Drought, disease and intensive hunting, all have combined to bring our duck supply to a dangerously low ebb. The hunter of waterfowl must obviously look forward to more and more strictly limited opportunities for enjoying his sport. The waterfowl problem is also peculiarly complicated because of the fact that many species of both ducks and geese breed in one part of the continent and winter in another region, sometimes several thousand miles away. The vicissitudes and dangers that they inevitably encounter in performing their long migrations, particularly during the Autumn when they must run the gauntlet of hundreds of thousands of guns, these factors together with the deadly effects of drought make the control and preservation of an adequate waterfowl supply an extremely difficult problem.

But when one turns to some other forms of game, the situation presents a very different picture.

The Department of Conservation has now begun a program of game propagation that will interest every sportsman and will contribute profoundly to the welfare of Louisiana's game supply. Governor Leche, deeply interested as he is in all conservation problems, has given his approval and encouragement to these wide, well planned and well supported game culture activities. Quail and wild turkey will be the species first used.

Under the direction of Mr. Armand P. Daspit, Director of the Wildlife Division of the Department of Conservation, Mr. Allen Blakemore, well experienced in quail raising, has already in operation Louisiana's first quail farm. Utilizing the latest scientific findings and provided with the most modern and efficient apparatus for hatching, brooding and rearing, Mr. Blakemore has already accomplished in the first two months of game operations, a very high measure of success. These initial activities are being conducted at a site adjacent to the Huey P. Long State Fish Hatchery near Lacombe, La. The numerous orderly and well managed breeding pens, brooders and holding pens present an interesting picture. The birds produced will be transferred for distribution throughout the State. Use will also be made of the large appropriate game preserves including the one now being established in Washington Parish.

No single bird in all North America offers sport to such a vast number of hunters as does the Bob White. Few birds in North America exhibit

(Continued on Page 8)

Louisiana Tarpon Rodeo

THE Louisiana Tarpon Rodeo at Grande Isle will next September celebrate its ninth year. Blessed with a fine past record and with an abundant promise of future expansion and success, this sporting event seems destined to take its place among the notable fishing "classics" of the country. Less publicized than any of the more famous fishing events, the Grande Isle Tarpon Rodeo has already a distinguished record for size and number of tarpon caught. As more and more sportsmen participate in this contest, the fame and accomplishments of this Louisiana event will grow.

The Grande Isle Tarpon Rodeo was begun in 1928. John Donovan, Hugh Wilkinson, Alfred Danziger and R. J. Howell, all of New Orleans, were the men who chiefly contributed to its original foundation. It has grown from a humble beginning of but a few boats to a distinguished gathering of keen fishermen from outside states as well as from all over Louisiana. Last year no less than 26 boats took part bringing a total of 113 fishermen to participate in or to witness the contest. Every year this event has met with success. In no year were tarpon not caught. Actual fishing occupies three days. This year the Grande Isle Tarpon Rodeo will be held on September 3, 4 and 5 inclusive, with September 6 as the extra non-contest day.

The greatest number of tarpon caught was in 1929 when the nine fish averaged 73 pounds. The largest average caught was in 1935, when five fish averaged 124 pounds. The largest of these, six foot nine inches, weighed 183 pounds, and brought much cheer to the heart of its captor, Mr. Mark H. Brown of Lake Charles, Louisiana.

Tarpon Rodeo rules are simple. Line is limited to 200 yards of No. 24 thread. A 12 to 16 ounce tip is permissible. Fishing goes on all day. The area covered includes Four Bayous, Barataria and Caminada. Spoon and live mullet are chiefly

(Continued on Page 8)

Louisiana Oysters: A Health Food

JAMES N. McCONNELL,
Director, Oyster Division, Department of Conservation of Louisiana

Oysters contain vital nutritive elements and essential food substances, such as vitamins, minerals, carbohydrates and protein.

Oysters are now being widely recommended by our leading specialists to assist in curing nutritional anemia, and because of their high iodine content for the prevention and cure of common goitre.

As a food the oyster is considered one of the greatest delicacies obtained from the sea, is easily digested and rich in elements important in our normal diet. The oyster contains phosphorous and calcium for strong bones and teeth, iodine for healthy thyroid, iron and copper for good red blood and vitamins A. B. C. D. and G. for growth and health.

Oysters are especially desirable in a diet when undergerminated grains and wholewheat bread cannot be obtained. They are rich in manganese and other salts, and except fresh liver, the oysters are the only food that contains the animal starch called glycogen.

Raw oysters, when they can be obtained fresh daily, make an ideal summer luncheon for the business man who must return to his office to work during the hot afternoon. The raw oyster luncheon will give him that filled, satisfied feeling without the resultant indigestion, or that heavy, sleepy feeling which is sure to follow a heavy mid-day meal during hot weather.

With today's speedy methods of transportation, and modern methods of refrigeration, oysters can be eaten every day during the year in coastal cities in close proximity to cultivated oyster grounds.

People do not care to eat oysters during the breeding season as they contain at that time a milky substance of peculiar taste that is unpleasant. The oyster fisherman of today, however, selects oysters from a reef or bed where they have completed the breeding period or have not as yet begun, owing to the differences in salinity and temperature of the water along our coastal area.

For the many people that are forced to count calories in their daily diet, a raw oyster luncheon will be of great assistance. Eat as many raw oysters as you wish, eat them with the usual con- Try the raw oyster luncheon for three weeks, weigh yourself before you start and again at the diments, but with as few crackers as possible. end of this period. You will be surprised at the weight you have lost and how well you will feel.

For those troubled with insomnia caused from indigestion, try for supper as many raw oysters with condiments and crackers as you wish, or an oyster soup with one dozen oysters and crackers. You can then sleep that sound restful sleep so necessary for good health.

The residents of Louisiana are fortunate in being able to obtain oysters whose texture and flavor are unexcelled the world over.

A Typical Louisiana Oyster Camp Showing Moored along side Its Working Fleet of Lugger and Skiffs.

Statistical Summary of Natural Resources of Louisiana

By **JAMES P. GUILLOT**, Departmental Executive Secretary and Acting Director of the Bureau of Research & Statistics
JAMES NELSON GOWANLOCH, Chief Biologist
ERNEST COULOHERAS, Engineer

(EDITORIAL NOTE: *The following statistical summary presents in compact form data covering the use of Louisiana's natural resources during the years 1933-34-35. This summary was presented in the Commissioner's Report of the Twelfth Biennial Report of the Department of Conservation, State of Louisiana, a document which has just recently been published.*

The importance and significance of these data presenting in such a compact form a survey of Louisiana's use of her natural riches make desirable the republication of them in the Louisiana Conservation Review.)

Louisiana, by grace of geographical position, and of present abundance of forest products, minerals, fisheries and wildlife, is a region of unique importance in the conservation pattern of the entire country.

New Orleans is a critical conservation center for the Southland, in that here at the Department's headquarters must be solved many of conservation's most important problems of preserving for posterity, the game, fish, forests, and minerals. That so much still remains has been due to the peculiar natural history of Louisiana and particularly to efforts of conservationists and civic leaders.

One of the guiding principles upon which the policies of the Department are based is:

"He who severs and profits by the exhaustion of the natural resources of the State in the creation of which he had no hand, should, in addition to the common burden of the expense of government, borne by all alike, bear an additional burden of taxation, the proceeds to go toward replacing either the resource which he had removed, or, if that be impossible, toward renewing one which by its nature is renewable."

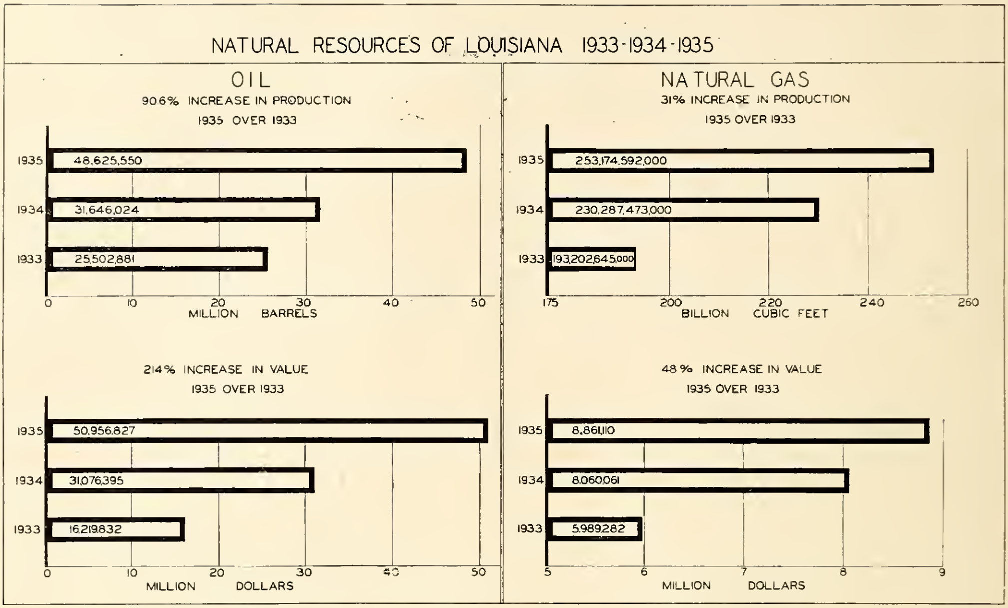
New Orleans and Louisiana, pioneers in the cause of Conservation, having been the recipient of "Nature's gifts in abundance," the nation's most interesting city and our good old State of Louisiana, mother of the many states carved out of the territory of St. Louis, adhere to the prevailing injunction of President Franklin D. Roosevelt: "Ours is a work of restoration. The Nation's first asset is to be found in the life of the people, which life is bound up and completely dependent on nature's material wealth, reaching every hamlet in this great republic."

It is doubtful if many citizens appreciate the peculiarly logical structure of the Department of Conservation. Based upon the premise that all resources derived from the land and from the water of a sovereign state should, since they are related in their common origin, be brought together under a single directive administration, the Department of Conservation embodies a unity that is greatly envied by other states. Consider, for example, the comparison with one other state structure, where the oil resources come under the administration of the Highway Department, the fish and game under a second commission, the forest products under a third. Such a multiplication of control tends to impair greatly the best accomplishment of the true purposes of conservation.

It is desirable to present in summarized form the statistical data for the triennium 1933-34-35 in such a manner that the increase or decrease in the utilization of Louisiana's natural resources may be readily visualized both in terms of volume and in terms of value. The total production volume for 17 of the 19 natural resources, some of them forming rather complex units, is here given. It will be noted that 14 of the 17 reported show increases in production volume, 3 of the 17 reported show decreased production. The 3 resources not reported in terms of production are omitted because of the difficulty of reducing measurement units to a common and comparable standard.

It will be further noted that the least increase in production volume reported is 0.37 percent for lumber, while the two ranking greatest increases in production volume reported are oil 90.6 percent and gravel 57 percent.

When we turn to the comparative production values of the natural resources utilized during this triennium we find that all 19 categories, some of them representing highly complex units, are reported and of this total of 19 no less than 17 show an increased value in production while only 2 report a decreased value production. Furthermore the range of increased value production is



Louisiana Department of Conservation. Bureau of Scientific Research and Statistics.
Charts prepared by Ernest Couloheras, Engineer.

extreme, the lowest being 13.6 percent for rosin, while the two ranking highest are 214 percent for oil and 241 percent for salt water fish.

It is instructive to survey briefly the comparative production volumes and production values of each of these 19 enumerated resources for the year 1935 over the year 1933. The detailed absolute values for both volume production and value production for the intervening year, 1934, as well as for the years 1933 and 1935 are given in the tables hereto appended, and are graphically demonstrated in the accompanying charts. Please observe carefully that the following percentages represent the percentage increase or percentage decrease in (first) volume production and (second) value production of the designated natural resource for the year 1935 over the year 1933.

Oil shows a production volume increase of 90.6 percent, production value increase of 214 percent.

Natural gas shows a production volume increase of 31 percent, a production value increase of 48 percent.

Carbon black shows a production volume increase of 18.5 percent, a production value increase of 53 percent.

Salt shows a production volume increase of 46 percent, a production value increase of 15.1 percent.

Sulphur shows a production volume increase of 16.2 percent, a production value increase of 16.2 percent.

Natural gasoline shows a production volume increase of 9.9 percent, a production value increase of 15.75 percent.

Furs show a production volume decrease of 1.5 per cent, a production value increase of 138 percent.

Salt water fish are not reported in terms of production volume but show a production value increase of 241 percent.

Fresh water fish are not reported in terms of production volume but show a production value increase of 52 percent.

Salt water shrimp show a production volume increase of 52 percent, a production value increase of 52 percent.

Lumber shows a production volume increase of 0.37 percent, a production value increase of 31 percent.

Pulp wood shows a production volume increase of 11.4 percent, a production value increase of 39.3 percent.

Pulp shows a production volume increase of 11.4 percent, a production value increase of 23.2 percent.

Turpentine shows a production volume increase of 13.7 percent, a production value increase of 13.7 percent.

Rosin shows a production volume increase of

13.6 percent, a production value increase of 13.6 percent.

Oysters show a production volume increase of 14.2 percent, a production value increase of 14.2 percent.

Shells show a production volume increase of 55.6 percent, a production value increase of 55.6 percent.

Gravel showed a production volume decrease of 57 percent, a production value decrease of 57 percent.

Sand showed a production volume decrease ot 51.6 percent, a production value decrease of 51.6 percent.

The remarkably healthy status of Louisiana's utilization of natural resources is strikingly demonstrated by these figures.

The absolute values in terms of production volume and in terms of production value for each of the 19 categories enumerated and further, the various unit products which compose these sometimes quite complicated categories of natural resources are herein presented in detail as follows:

DIVISION OF MINERALS

OIL

Year	Amount	Value
1933	25,502,881 bbls. @ $0.636	$16,219,832.32
1934	31,646,024 bbls. @ $0.982	$31,076,395.57
1935	48,625,550 bbls. @ $1.05	$50,956,827.50

Increase in production in 1935 over 1933, 23,122,679 bbls., or 90.6%.

Increase in value in 1935 over 1933, $34,736,995.18 or 214%.

NATURAL GAS

Year	Amount (Thousand C. F.)	Value
1933	193,202,645 @ $0.031	$5,989,282.00
1934	230,287,473 @ $0.035	$8,060,061.56
1935	253,174,592 @ $0.035	$8,861,110.72

Increase in production in 1935 over 1933, 59,971,947 thousand cubic feet, or 31%.

Increase in value in 1935 over 1933, $2,871,828.73 or 48%.

CARBON BLACK

Year	Amount	Value
1933	54,566,416 lbs. @ $0.0278	$1,516,946.37
1934	66,875,110 lbs. @ $0.0354	$2,377,378.89
1935	64,676,636 lbs. @ $0.036	$2,328,358.90

Increase in production in 1935 over 1933, 10,110,220 lbs. or 18.5%.

Increase in value in 1935 over 1933, $801,412.53 or 53%.

SALT

Year	Amount	Value
1933	531,493 Tons @ $4.42	$2,351,399.06
1934	566,591 Tons @ $5.03	$2,849,952.73
1935	510,369 Tons @ $5.03—$2,566,956.07 267,022 Tons @ $0.52— 138,851.44	$2,705,807.51

Increase in production in 1935 over 1933, 245,898 Tons or 46%.

Increase in value in 1935 over 1933, $354,408.45 or 15.1%.

SULPHUR

Year	Amount	Value
1933	321,492 Tons @ $18.00	$5,786,656.00
1934	229,830 Tons @ $18.00	$4,136,940.00
1935	373,343 Tons @ $18.00	$6,720,174.00

Increase in production over 1933, 51,851 Tons or 16.2%.

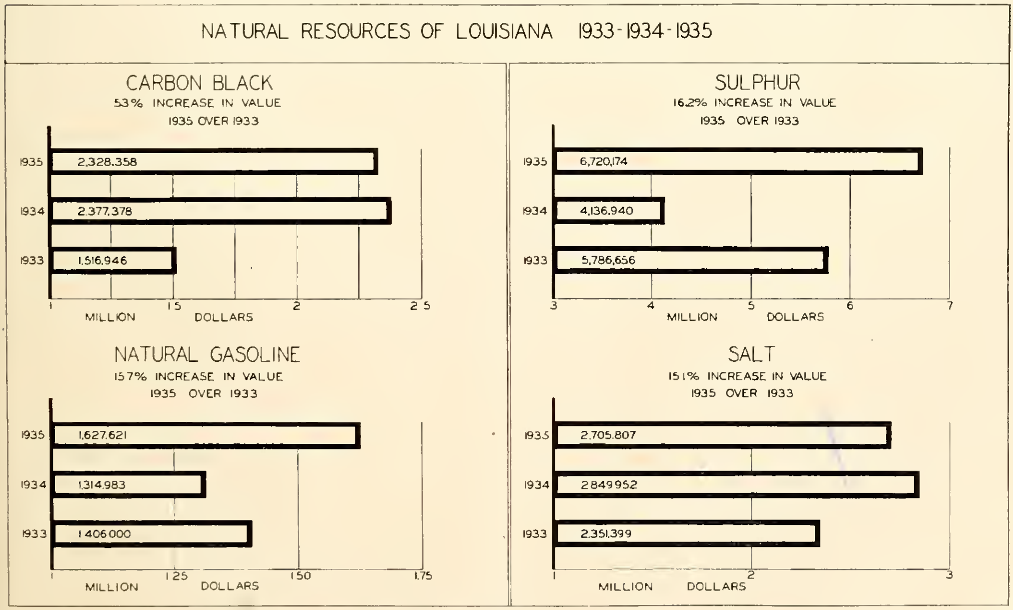
Increase in value in 1935 over 1933, $933,518.00 or 16.2%.

NATURAL GASOLINE

Year	Amount	Value
1933	37,000,000 gals. @ $0.038	$1,406,000.00
1934	33,717,516 gals. @ $0.039	$1,314,983.12
1935	40,690,539 gals. @ $0.04	$1,627,621.56

Increase in production 1935 over 1933, 3,690,539 gallons or 9.99%.

Increase in value in 1935 over 1933, $221,621.56 or 15.75%.



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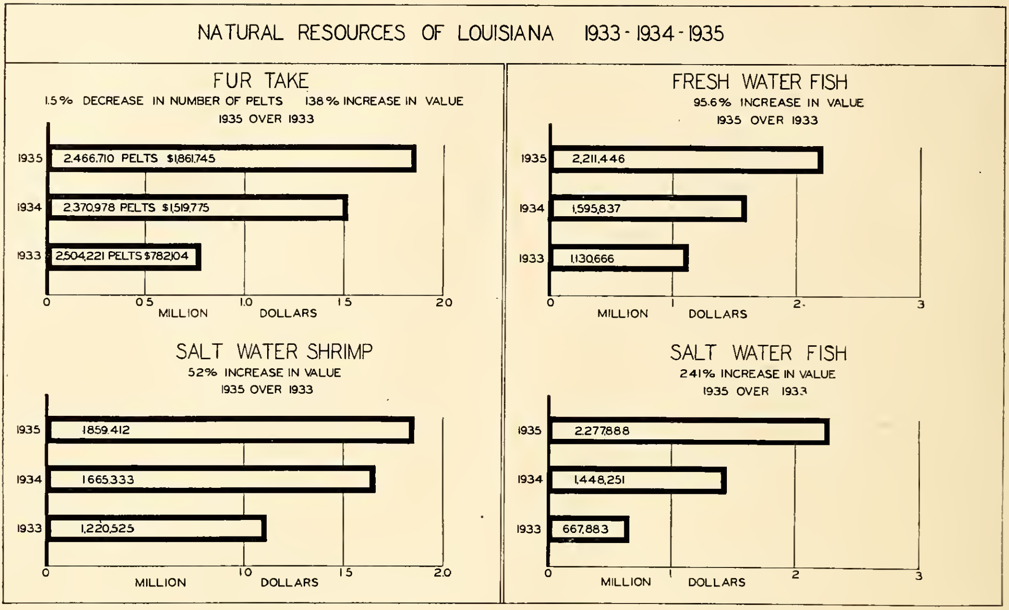
Charts prepared by Ernest Couloheras, Engineer.



Louisiana Department of Conservation. Bureau of Scientific Research and Statistics. Charts prepared by Ernest Couloheras, Engineer.

FURS

1932-33				
Muskrats	2,150,915	@	$0.26	$ 559,237.90
Opossums	127,890	@	.15	19,683.50
Raccoons	87,674	@	.80	70,039.20
Minks	82,364	@	1.50	123,546.00
Otters	870	@	5.00	4,350.00
Miscellaneous	2,159	@	.50	1,079.50
Skunks	52,349	@	.08	4,167.92
Total	2,504,221			$ 782,104.02
1933-34				
Muskrats	2,025,915	@	$0.58	$1,175,030.70
Opossums	123,540	@	.30	37,060.00
Raccoons	85,764	@	1.25	107,205.00
Minks	81,463	@	2.25	183,291.75
Otters	780	@	7.00	5,460.00
Miscellaneous	2,557	@	.60	1,534.20
Skunks	50,959	@	.20	10,191.80
Total	2,370,978			$1,519,775.45
1934-35				
Muskrats	2,125,720	@	$0.65	$1,381,718.00
Opossums	126,000	@	.35	44,300.00
Raccoons	83,467	@	1.85	154,413.95
Minks	80,364	@	3.25	261,183.00
Otters	789	@	10.00	7,890.00
Miscellaneous	2,415	@	.70	1,690.50
Skunks	47,955	@	.22	10,550.10
Total	2,466,710			$1,861,745.55

	No. of Pelts	Value
1932-33	2,504,221	$ 782,104.02
1933-34	2,370,978	$1,519,975.45
1934-35	2,466,710	$1,861,745.55

Decrease of number of pelts in 1935 over 1933, 37,511 or 1.5%.

Increase in value of pelts in 1935 over 1933, $1,079,641.53 or 138%.

SALT WATER SHRIMP

1933	34,872,145 lbs.	$1,220,525.07
1934	47,580,960 "	1,665,333.60
1935	53,126,064 "	1,859,412.24

Increase in production in 1935 over 1933, 18,253,919 lbs. or 52%.

Increase in value in 1935 over 1933, $638,887.17 or 52%.

SALT WATER FISH

1933	Amount	Value
Speckled Sea Trout	307,529 lbs.	$ 18,451.74
Sheepshead	36,189 "	1,809.45
Redfish	196,853 "	9,842.65
Flounders	25,540 "	1,787.80
Salt Water Catfish	34,240 "	2,054.40
Common Salt Water Fish	114,109 "	2,852.72
Terrapins	2,431 doz.	24,310.00
Sea Turtles	142,407 lbs.	5,696.28
Hard Shell Crabs	768,683 doz.	115,302.45
Soft Shell Crabs	132,353 "	99,264.75
Crabmeat	1,813,508 lbs.	362,701.60
Crabs	18,595 baskets	13,946.25
Shrimp Hulls	986,360 lbs.	9,863.60
		$ 667,883.69

1934	Amount	Value
Speckled Sea Trout	309,492 lbs.	$ 46,423.80
Redfish	222,932 "	17,834.56
Sheepshead	49,094 "	3,927.52
Flounders	22,174 "	2,217.40
Sea Turtles	288,770 "	23,091.60
Hard Shell Crabs	738,480 doz.	73,848.00
Soft Shell Crabs	346,383 "	346,383.00
Crabmeat	3,088,163 lbs.	926,448.90
Common Salt Water Fish	100,864 "	8,077.12
		$1,448,251.90

1935	Amount	Value
Speckled Sea Trout	210,446 lbs.	$ 31,566.90
Redfish	285,733 "	20,858.64
Sheepshead	53,120 "	4,249.60
Flounders	83,630 "	8,363.00
Sea Turtles	218,409 "	17,472.72
Common Salt Water Fish	178,351 "	14,268.08
Crabmeat	5,764,115 "	1,729,234.50
Hard Shell Crabs	835,716 doz.	83,571.60
Soft Shell Crabs	351,725 "	351,725.00
Shrimp Hulls	1,657,895 lbs.	16,578.95
		$2,277,888.99

Increase in value in 1935 over 1933, $1,610,005.30 or 241%.

FRESH WATER FISH

1933	Amount	Value
Buffalofish	6,857,781 lbs.	$ 274,301.24
Catfish	3,540,471 "	247,832.97
Crayfish	1,975,644 "	98,782.20
Frogs	1,817,450 "	272,617.50
Gaspergou	1,992,783 "	59,783.49
Shrimp	2,217,153 "	155,200.71
Spoonbill	281,066 "	11,242.64
Turtles	142,702 "	7,135.30
Miscellaneous	125,678 "	3,770.34
		$1,130,666.39

1934	Amount	Value
Catfish	3,070,000 lbs.	$ 245,600.00
Gaspergou	1,363,033 "	68,151.65
Spoonbill Cat	373,925 "	26,174.75
Buffalofish	8,579,150 "	428,957.50
Terrapins	563 doz.	11,260.00
Fresh Water Turtles	533,500 lbs.	80,025.00
Frogs	1,852,345 "	463,086.25
Fresh Water Shrimp	1,938,610 "	174,474.90
Crayfish	1,032,671 "	72,307.91
Miscellaneous	5,645 "	338.70
Baby Green Turtles	2,546,087 individuals	25,460.87
		$1,595,837.53

1935	Amount	Value
Catfish	4,364,180 lbs.	$ 349,134.40
Gaspergou	1,658,140 "	82,907.00
Spoonbill Cat	622,030 "	43,542.10
Buffalofish	9,673,935 "	483,696.75
Terrapins	8,370 doz.	167,400.00
Fresh Water Turtles	849,000 lbs.	127,350.00
Frogs	2,529,095 "	632,273.75
Fresh Water Shrimp	1,938,610 "	174,474.90
Crayfish	1,250,690 "	87,548.30
Miscellaneous	30,450 "	1,827.00
Baby Green Turtles	6,129,235 individuals	61,292.35
		$2,211,446.55

Increase in value in 1935 over 1933, $1,080,780.16 or 95.6%.

OYSTERS

Year	Amount	Value
1933	1,850,448 Bushels @ $0.30	$555,134.40
1934	2,829,684 Bushels @ $0.30	$848,905.20
1935	2,113,218 Bushels @ $0.30	$633,965.40

Increase in production in 1935 over 1933, 262,770 Bushels, or 14.2%.

Increase in value in 1935 over 1933, $78,831.00, or 14.2%.

SHELLS

Year	Amount	Value
1934	465,668 cu. yds. @ $0.35	$162,983.80
1935	725,411 cu. yds. @ $0.35	$253,893.85

Increase in production in 1935 over 1934, 259,743 cu. yds., or 55.6%.

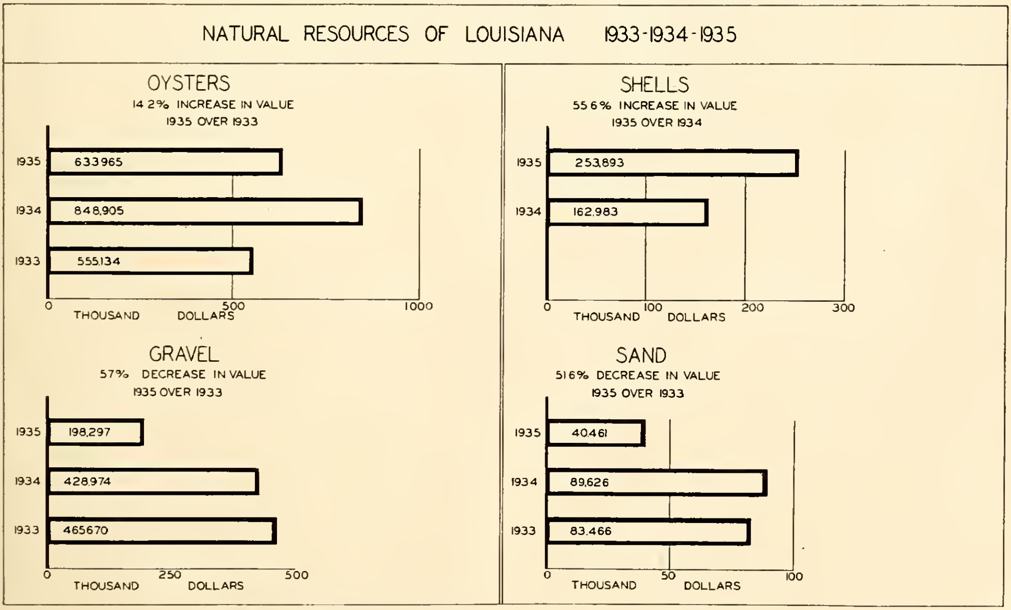
Increase in value in 1935 over 1934, $90,910.05, or 55.6%.

GRAVEL

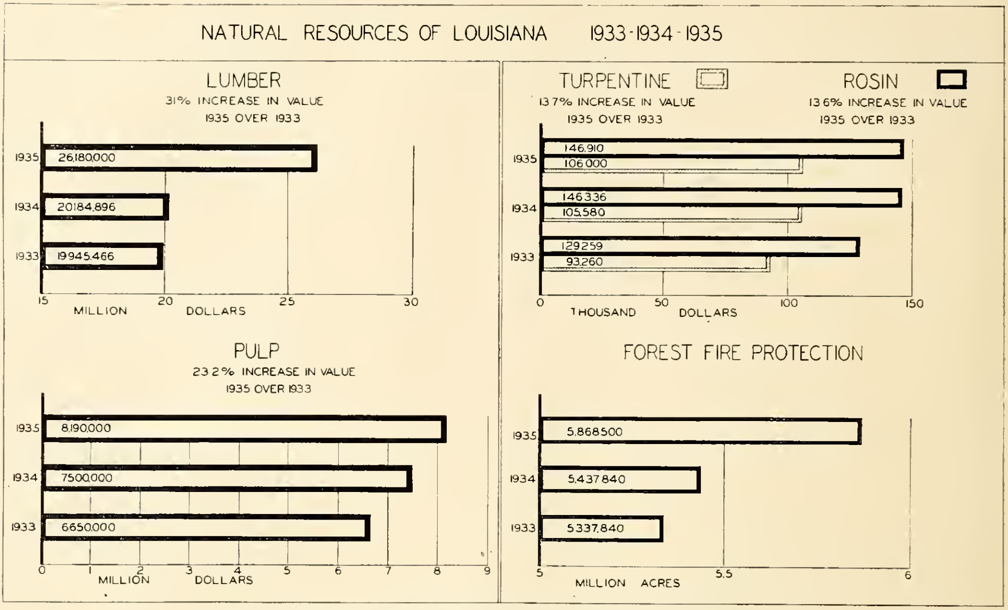
Year	Amount	Value
1933	895,521 Tons @ $0.52	$465,670.92
1934	824,951 Tons @ $0.52	$428,974.52
1935	381,341 Tons @ $0.52	$198,297.32

Decrease in production in 1935 over 1933, 514,180 Tons, or 57%.

Decrease in value in 1935 over 1933, $267,373.60, or 57%.



Louisiana Department of Conservation. Bureau of Scientific Research and Statistics.
Charts prepared by Ernest Couloheras, Engineer.



Louisiana Department of Conservation. Bureau of Scientific Research and Statistics.
Charts prepared by Ernest Couloheras, Engineer.

SAND

Year	Amount	Value
1933	417,332 Tons @ $0.20	$ 83,466.40
1934	448,134 Tons @ $0.20	$ 89,626.80
1935	202,306 Tons @ $0.20	$ 40,461.20

Decrease in production in 1935 over 1933, 215,026 Tons, or 51.6%.

Decrease in value in 1935 over 1933, $43,005.20, or 51.6%.

LUMBER

Year	Amount	Value
1933	767,133,336 Bd. Ft. @ $26.00 M. B. Ft.	$19,945,466.74
1934	720,889,154 Bd. Ft. @ $28.00 M. B. Ft.	$20,184,896.21
1935	770,000,000 Bd. Ft. @ $34.00 M. B. Ft.	$26,180,000.00

Increase in production in 1935 over 1933, 2,866,664 Board Feet, or 0.37%.

Increase in value in 1935 over 1933, $6,234,533.27, or 31%.

PULP WOOD

Year	Amount	Value
1933	350,000 Cords @ $3.20	$1,120,000.00
1934	375,000 Cords @ $3.60	$1,350,000.00
1935	390,000 Cords @ $4.00	$1,560,000.00

Increase in production in 1935 over 1933, 40,000 Cords, or 1.14%.

Increase in value in 1935 over 1933, $440,000.00, or 39.3%.

PULP

Year	Amount	Value
1933	175,000 Tons @ $38.00	$6,650,000.00
1934	187,500 Tons @ $40.00	$7,500,000.00
1935	195,000 Tons @ $42.00	$8,190,000.00

Increase in production in 1935 over 1933, 20,000 Tons or 11.4%.

Increase in value in 1935 over 1933, $1,540,000.00, or 23.2%.

TURPENTINE

Year	Amount	Value
1933	233,150 Gallons @ $0.40	$ 93,260.00
1934	263,950 Gallons @ $0.40	$105,580.00
1935	265,000 Gallons @ $0.40	$106,000.00

Increase in production in 1935 over 1933, 31,850 Gallons, or 13.7%.

Increase in value in 1935 over 1933, $12,740.00, or 13.7%.

ROSIN

Year	Amount	Value
1933	15,388 (280 lb. bbls.) @ 3c lb.	$129,259.20
1934	17,420 (280 lb. bbls.) @ 3c lb.	$146,336.40
1935	17,490 (280 lb. bbls.) @ 3c lb.	$146,916.00

Increase in production in 1935 over 1933, 2,102 Barrels, or 13.6%.

Increase in value in 1935 over 1933, $17,656.80, or 13.6%.

LOUISIANA TARPON RODEO

(Continued from Page 1)

used. A comparison of the relative catches secured on these two baits is of interest. In 1928, six tarpon were taken in the Rodeo on spoon, two on mullet; in 1931, four on spoon, two on mullet; 1932, five on spoon, four on mullet; 1933, one on spoon, and three on mullet; 1934, one on spoon, five on mullet; 1935, two on spoon, three on mullet.

The tarpon caught are taken immediately to the official boat and there weighed so that the fishermen may have no misgiving that any ounce of weight is lost through evaporation. Although the sportsmen do catch many other kinds of fish, only tarpon count in the contest.

May fortunate weather and large and hungry tarpon attend upon this year's celebration of Louisiana's Tarpon Rodeo.

DEPARTMENT OF CONSERVATION BEGINS GAME PROPAGATION PROGRAM

(Continued from Page 1)

such a splendid combination of fine qualities as does this quail. The Bob White and the Wild Turkey are also particularly desirable for purposes of game propagation and game stocking since they are chiefly local in habit and will not, like some species of waterfowl, betake themselves to the distant Arctic regions with the first coming of Spring. Mr. Armand Daspit's program of game propagation, far reaching and carefully planned, gives full promise of abundant success.

The *Louisiana Conservation Review* will present in a forthcoming issue a more detailed and illustrated account of this important conservation work now launched.

Hardy Palms of Louisiana

By C. W. EICHLING, Sr.
New Orleans, Louisiana

In offering my writings on Hardy Palms of the Southern States, I wish to say that these articles were inspired by New Orleans plant lovers, who, like myself, had noticed the decline of some of our hardy palms and were almost helpless as far as a remedy, or a means of conservation, was concerned.

They induced me to write on the subject with a view to arousing interest in the growing of outdoor palms for parkways and highways, and the article took on "local color".

However, we found that the conditions prevailing in New Orleans are the same throughout that belt from the Atlantic to the Pacific ocean within which palms may be successfully planted in the open. I therefore enlarged the scope of my articles and include what I call the Southern Palm Belt, with the hope that many of my readers will derive benefit from my writings and cooperate with me in the conservation of our hardy palms and in extending the planting of them over the entire belt where conditions justify the outdoor planting of palms.

PHOENIX CANARIENSIS, best of the date palms.

To carry out my plan successfully requires patience, a little extra work and expense, but I feel that all those who lend their assistance to the realization of my idea will be amply rewarded by the appreciation of generations to come. Let every man, woman and child plant a hardy palm wherever soil and climatic conditions permit.

Palms are the Princes of the Vegetable Kingdom, so styled by the great Linnaeus, the founder of systematic botany. Their grandeur and beauty is best appreciated by dwellers in the colder zones whose privilege it has been to see these wonders of creation in their native forests where they reach perfection in height and foliage. The impressions thus produced can never be effaced from memory.

While some palms rise to a height of 100 feet and more, others form lower trunks with graceful heads of fan-shaped or feathery foliage, and still other genera are mostly seen as dense clumps, decorating the base of the taller species or used in solitaire effects on lawns.

The family of Palms is admittedly the noblest in creation. But it is nevertheless, even at this advanced age of discovery and study, one of the least perfectly known. In the middle of the Eighteenth century Linnaeus knew only eight or nine kinds of palms, among which were the Coconut, *Cocos nucifera,* the Date palm, *Phoenix dactilifera, Chamaerops humilis,* the only native palm of Europe, and *Corypha umbraculifera* of the genera best known today. Not until the end of the Eighteenth century is there mention of a palm native of the United States, among which we count today some of our

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FOOTNOTE: A great many requests for information on Southern Palms have been received. The Department of Conservation through its Division of Forestry is carrying on a detailed study of the palms in Louisiana. The Department has been very fortunate in receiving the cooperation of two well known experts—Dr. Miriam L. Bomhard and Mr. C. W. Eichling, Sr.

A series of articles will be issued on the palms, and I believe that these articles will prove of great interest to our readers.

The accompanying article was first published in the **SOUTHERN FLORIST AND NURSERYMAN** in the April, 1936, issue.

V. H. SONDEREGGER,
Forester & Director, Division of Forestry,
Department of Conservation of Louisiana.

191636

WASHINGTON ROBUSTA, popular fan palm.

most valuable decorative landscape material, such as Sabal palmetto, which was first botanically described in 1788. A few native palms of Florida are mentioned as early as the beginning of the Nineteenth century. The poplar *Washingtonia*, several hardy species of *Phoenix* and the best of the *Sabals* have been presented to us since the end of the Nineteenth century. At the present time the number of genera of palms mounts into the hundreds, and the species of the Western hemisphere alone are numbered over one thousand, while the number of species and varieties indexed by Bailey of Cornell University surpasses 7,000.

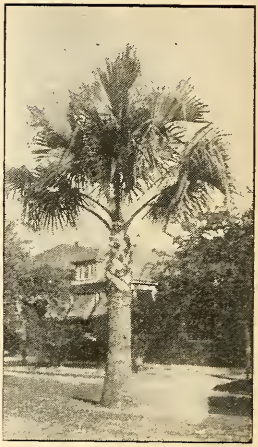
For extensive study and description of the palms native to the southern United States we are largely indebted to Dr. John K. Small, the eminent botanist and curator of the botanical gardens at the Bronx. Among earlier botanists and palm specialists were Bentham and Hooker, Beccari, Drude, Alexander von Humboldt, and the leading authority on palms, Hermann Wendland, director of the royal gardens at Herrenhausen, Hanover. The writer enjoyed the privilege of personal acquaintance with Director Wendland and is greatly indebted to him for his first instruction on the subject of palms during his visits at the palm houses in 1878 and 1879.

Not all nurserymen, florists and amateurs are acquainted with the palms adapted for outdoor planting in the Southern states and it is the writer's aim to describe and recommend for propagation the palms which he has had opportunity to study during his 50 years of practical work.

Group of SABAL PALMETTO palms in Audubon Place, New Orleans. They have resisted, without damage, all climatic attacks for 35 years.

A WARNING

How few of our plant lovers are aware of the fact that our palms are dying fast from old age; and that several species are already so scarce that, unless a young generation is immediately started from seed, there is no escape from total extinction! Can anyone who has admired them, imagine the Southern states denuded of their palms? of that natural, tropical charm which has helped to make the South the Mecca of tourists? Take away her palms and the South will indeed be a dead country.



SABAL URESANA

During the latter years the nurserymen of the South have met with poor encouragement from garden owners to grow stocks of young palms. Thousands of plants were left unsold in the nurseries, and many grew too large for the general trade. But very few nurseries are today stocked with young hardy palms for outdoor planting to take the place of the dead and dying. Only three species of palms in New Orleans are natives of the Southern states, and of the entire collection in our parks and gardens there are not over a dozen species which have withstood the lowest temperatures this section has experienced during the last 35 years, which is about the average life of a palm in a city, where growing conditions are never of the best.

In order to prepetuate our palms it becomes the duty of every owner of a garden, the parking commissions and superintendents of highways to encourage the planting and care of palms and assist in saving them from extinction.

It is a singular fact that some of the hardiest and most decorative palms are the least known, and the writer has made it his life work to acquaint the lover of hardy palms with these species and with their adaptability to planting in gardens, parks and highways where they would be for generations the most outstanding and noblest of plants, an inspiration and pleasure for young and old and an irresistible attraction for tourists.

New Orleans is indebted to the late Clarence F. Low and to Colonel Derby, great lovers and students of plants, and especially to palms, for the introduction of a number of rare and hardy species. This was in the beginning of this century, and some of the finest specimens, which were almost fully grown when brought here, are still today subjects of admiration by our home folks and visitors. I have in mind several species of Sabal, which deserve to become better known and planted for their excellent qualities.

SABAL PALMETTO

What Is a Hardy Palm

What may safely be styled a hardy plant? The title can only be applied in a relative sense. Hardiness of plants can only be established after many years of observation and tests as to their resistance to soil and climate in which they are expected to thrive. The lowest and highest temperature during a span of years must be ascertained which in the case of palms is from 35 to 40 years. Soil, water and average air humidity have to be studied, and besides these, a plant must be reasonably immune against a number of other attacks in order to stand the test of what is expected of a so-called hardy plant. In some cases a few miles to the north decide the adaptability of a plant for a certain section and it becomes a matter of study and judgment by the planter.

LIVISTONA SINENSIS, or LATANIA BORBONICA

In a description of palms we are mainly concerned with two distinct forms of leaves. One is the flabellate, fan-shaped or fan-veined, in which the midrib of the leaf is rather short and all the side veins arise from the top of the leaf-stalk and spread out like a fan, as in *Washingtonia, Livistona* or *Latania.*

The second leaf form in palms is the pinnate, feather-leaved, or feather-veined, in which the midrib or rachis extends the full length of the leaf. From the midrib arise the side veins, giving the leaf the appearance of a feather as exemplified in *Phoenix.*

As the writer does not attempt a scientific treatise on our palms, but will confine himself to terms which may be understood by all, several of our minor native palms, like *Serenoa repens* and *Sabal minor,* will be omitted from the list of species and only such as may be recommended for their superior decorative qualities and hardiness will be discussed.

The Palm Belt of the Southern United States from the Atlantic Coast to the Pacific

A line showing the approximate northernmost limit up to which one or more species of palms may be grown in the open ground with relative success would be dictated by climatic conditions recorded during a period of from 35 to 40 years. Only sections where during such a period the mercury did not drop below 10 degrees above zero should be encouraged to plant palms in the open. This, however, should not keep any plant lover, living in a slightly colder region, from cultivating hardy palms as pot plants for indoor decoration during the winter and for subtropical effects outdoors during the summer under partial shade. (Continued on Page 25)

SABAL EXUL, or VICTORIA, a giant in its class.

The Louisiana Nature Guardian Clubs As a Basis for Nature Study Teaching

By Marguerite Steckler
Southwestern Louisiana Institute, Lafayette, Louisiana

Editorial Note: *The following paper was presented by Miss Steckler before an educational symposium of the Louisiana Academy of Science.*

As a basis for my Nature Study Teaching in the Southwestern Louisiana Institute Training School, I use the Louisiana Nature Guardian Club.

It has been my experience that interest in the Louisiana Nature Guardian Club is the best single incentive for developing intelligent, sympathetic and enjoyable acquaintance with the natural world in which we live, and a desire to conserve natural resources and natural beauty.

I believe one of the most satisfying outcomes of the Louisiana Nature Guardian Club, other than growths in knowledge and appreciation of nature, is the wholesome use of leisure through contact with nature. Once children have become members of the club and interest in the wonders of nature has been aroused, they spend a great deal of their time, at first as Nature Guardians, then through interest, and finally through love of nature, out of doors, exploring, observing, wondering, collecting, planning, constructing, cultivating,—all the while developing habits of observing closely, independently, patiently, accurately, and of thinking, through trying to explain the "how" and the "why", and through drawing conclusions. Unconsciously, nature's forces prepare them for the life of labor that lies ahead.

Also, I have found the Louisiana Nature Guardian Club to be an activity which contributes to the development of every elementary school subject. While getting information on assigned topics in order to make contributions at the club meetings, children do not only gain knowledge about nature or develop interest in nature, but they learn to read for information. Through this purposeful search for information, they learn to use library references. Interest in nature leads to much reading for recreation. In our school library, we find many Nature Guardians checking out books on nature for "free reading".

The club meetings furnish splendid opportunities for the development of oral language.

Nature Guardians are eager to construct bird houses, feeding shelves, and flower boxes.

They enjoy studying such masterpieces as "The Song of the Lark" by Breton, "The Flower Girl of Holland" by Hitchcock, and "The Horse Fair" by Bonheur.

Such topics for discussion as "The Development of the Louisiana Department of Conservation", "State and National Game Laws" and "The Life of John James Audubon" are valuable contributions to the development of history and civics. There is opportunity, also, through club participation to develop wholesome group consciousness and a fine appreciation for the rights of others.

The contribution which a study of plants and animals makes to the development of geography, is greater than one might think upon first mention of the subject. In connection with world geography, there are the main geographic bird regions, migratory routes, and bird reserves. There is plant distribution. The location of Louisiana in relation to bird migratory routes is interesting. Here, as elsewhere, seasons and climate have a definite relation to bird and plant life; and plant and animal life a definite relation to each other.

The health values involved are certainly worthy of mention. Exercise, fresh air and sunshine in woods and fields maintain and develop physiologic health; while the study of birds, plants and other phases of nature, provides objective interests and hobbies, helps one to make happy, effective adjustment to environment, develops a sense of responsibility (the protection of natural resources), and, as I've mentioned before, develops the powers of observation and concentration.

In the Southwestern Training School this fall I had in my department a group of children who had been with me last year. The first day of school they were very enthusiastic about reorganizing the Club and enlisting as members children new to the grade. The first two or three meetings were spent electing officers and relating experiences we had had during the summer months. There were stories of many enjoyable hours spent out of doors. Several children had been influential in preventing the ruthless destruction of plant life. One had saved the life of a bird. Another had taught a little brother a lesson in kindness to dumb animals. At the suggestion of one of the pupils, the class wrote to Mrs. Cottman telling her about the reorganization of the club and of their experiences with nature during the summer months. You can readily see how well the Nature Guardian work motivated letter writing.

The children in the other group I had this fall were new to my department and not members of the Louisiana Nature Guardian Club. I planned to enlist their interest in the Club when an opportunity presented itself, which I knew would be early in the semester, for each day opportunities present themselves for introducing interesting projects. For several weeks the children brought to the classroom Rosa Montana, dahlias, goldenglows, Guernsey lilies, zinnias, mistflowers, goldenrods, asters, and many other flowers. You remember how beautiful these were this fall. While all of the children had seen these beautiful flowers growing in profusion in many yards and in fields, and agreed that they made the home surroundings beautiful and were necessary to happiness, few of the children knew the flowers by name or had any of them growing in their own yards. A discussion of the ease with which these and many other flowers are grown in Lafayette, and the pleasure which one gets from growing them and being able to recognize and call them by name as he walks about on the street or in the country, led to plans for:

1. A study of plants, particularly flowers—the life of plants and their relation to us, and
2. The making of "gardens of our own".

Through the Club activities—the work of committees, of individuals, of the group as a whole, of the student teacher in charge, and the regular Club meetings (when a great deal was learned about conducting a meeting and speaking effectively before an audience)—the class learned:

1. How plants help man.
2. What a plant is.
3. How plants produce other plants.
4. The needs of plants—among other things, *protection,* protection from unfavorable climatic conditions, from injurious insects, and from harmful animals, including *man.*

The children learned to recognize and name a great many of Lafayette's fall and winter flowers, both cultivated and wild. At one meeting of the Club, the roll call was answered by showing and naming either a real flower or the picture of one. Incidentally we learned some very interesting stories about some of the flowers such as the one about the zinnia. The story is told that way back in 1860 an old German bottanist by the name of Dr. Zinn was riding across the hot plains of old Mexico. All along the way he was dazzled by the brilliant red and yellow rosetted flowers. He climbed down and filled his knapsack with these plants. Suddenly he was surrounded by Mexican bandits. They tore open his knapsack thinking to take his treasure. They were so disgusted at finding only flowers, one of the disappointed bandits wanted to kill him. The leader, however, ordered that they let him go. He said only one with a child's mind would be carrying a load of wild weeds in his bag, and it was said that a curse followed him who killed a childish mind. Poor old Dr. Zinn, realizing that he owed his life to the little red-headed weed, nursed it faithfully in his garden, sending its seeds over all the world. People called it the Zinnia in his honor.

So many flowers, seeds, seed pods, bird nests, insect nests, shells, cocoons, nature books, nature magazines, and rocks of various kinds were brought to school, that we started a Nature Museum of which we are now very proud.

We collected in a class scrap book all the nature materials brought to school that could be organized and kept best in that way—such materials as nature poems and pictures, hunting licenses, pictures and texts of the state flowers, a story of how the Boy Scouts are asking protection for the American Bald Eagle, an account of the Gardens of the Nations on the R. C. A. Building in Rockefeller Center, New York City, an article from the Times-Picayune which tells what Dr. T. E. Snyder has learned about the habits, instincts, and peculiarities of termites, a story which tells how the United States government is using plants to anchor soil, another from a "Better Homes and Gardens" by Mr. Archibald Ruthledge in which he tells in his delightful way of the wonders of migration, a clipping from the Lafayette "Advertiser" telling of the organization here of the Lafayette Conservation and Humane Society of which Mr. Claycomb is an officer, and numerous others. Mention of these is suggestive of the wealth of nature materials present in our environment and available for use by those interested.

As these materials were brought to school they were made the basis for interesting and instructive discussions during the language period, the morning exercise period, or during Club meetings.

(Continued on Page 24)

Progress of State Park Development in Louisiana

By N. E. SIMONEAUX, Secretary, State Parks Commission

CLASSIFICATION OF STATE PARK SITES

While the Branch of Planning and State Co-operation of National Park Service is co-operating in State Park development by furnishing labor, material and technical supervision, provided the State furnishes the proper sites, the State Parks Commission of Louisiana proposes to concentrate on the development of major recreational parks before undertaking the extensive establishment or maintenance of other sites such as State Waysides, Monuments, and Recreation Reserves.

The classification of the holdings of a State Parks System by the National Resources Board of the United States follows:

> "State Parks: State parks are those areas of considerable extent in which are combined either superlative scenic characteristics and a fairly varied and extensive opportunity for active recreation, or distinctive scenic character and exceptional opportunity for active recreation.
>
> "Essential to the character of any state park is the preservation of the native landscape and of native fauna, to the extent that provision and enjoyment of active recreation use facilities shall not be permitted to destroy or materially to impair valuable landscape features or to injure wild life or its natural habitat, and to the further important extent that all of its natural resources shall be withheld from commercial utilization.
>
> "State Recreation Reserves: State recreation reserves are those areas which, lacking scenic distinction, supply such opportunity for active recreation as entitles them to be considered a part of the state's responsibility.
>
> "State Monuments: State monuments are those buildings established for public use wholly or dominantly because of their historic, archeological, or scientific interest and on which even the simplest types of active recreation, if permitted at all, are subordinated to the primary purpose for which such monuments are established.
>
> "State Waysides: State waysides are those small areas situated along or close to highways, administered by the highway department, in cooperation with the park administrative agency, and designed to provide the highway traveler with locations where he may stop to rest and to picnic, and where he may be somewhat separated from the sight, sound, and smell of highway traffic. These should be distinguished from extensions of the highway right-of-way acquired to include and preserve natural features which contribute to the attractiveness of the highway, but which are not designed for use as stopping places. They should also be distinguished from highway stopping places or "turnouts" designed primarily to provide locations where cars may be stopped, off the highway, while their occupants enjoy some intimate or distant view at their leisure.
>
> "State Parkways: The state parkway probably needs no definition beyond calling attention to the fact that it embraces an elongated park with a road running through it—in contradistinction to a highway possessing a broad right-of-way. In the case of the parkway, access is wholly under control of the administrative agency; in the case of the highway, abutting property owners possess definite rights of access."

It is estimated that from eight to twelve major State Parks and recreational sites, having an area of from 500 to 5,000 acres such, if properly located near the principal centers of population, would adequately serve the entire State. If the State Park Program of the National Park Service is continued during the next five years and the State is able to acquire the proper sites during that period, the major State Park Program can be completed without cost to the State other than the acquisition of the sites. While it is hoped that the State Park Division of National Park Service will be made a permanent organization, the State would be in a position, even without Federal help, to gradually supplement the major State Park System by the establishment of from fifty to one hundred waysides about twenty-five miles apart along our principal paved highways.

PARK SITES PARTIALLY DEVELOPED

Longfellow-Evangeline Memorial Park

On account of its location between a paved State highway and Bayou Teche on the northern line of the corporation limits of the Town of St. Martinville and on account of its comparatively small area of 157 acres, Longfellow-Evangeline

Grove of Young Pines in Extreme Northern Part of Chemin-A-Haut Park

Memorial Park would, in the absence of any historical interest associated with the site, be more properly classed as a City Park than a State Park.

In order to create a National interest in this Memorial Park, a proposal to establish a Longfellow shrine and a museum and library of French-Acadian culture in North America within the park is being studied by the State Parks Commission. The museum and shrine would probably be located in a building in the park area which was formerly the home of Louis Arceneaux, on whose life and that of Emmeline LaBiche, (Acadian exiles from Grand Pre, Nova Scotia, who both lived and died in the Town of St. Martinville, on the Banks of Bayou Teche) was founded the immortal story of "Evangeline."

Another project under consideration for the purpose of enhancing National and International interest in this park would consist of an Arboretum of typical shrubs and trees from each of the forty-eight states of the Union, and, if possible, from each Province of Canada.

The State Parks Commission also has under consideration a proposition to operate a restaurant and refreshment service in the Clubhouse built within the park by National Park Service. The formal opening and dedication of this park will probably take place some time in September of this year.

A recent check of attendance shows that it amounts to approximately 1,500 persons weekly which would average about 75,000 per annum, 25% of whom are from other states. It is estimated that as soon as the clubhouse is formally opened the attendance will more than double.

Louisiana Purchase Memorial Park

This proposed Memorial Park would include the ruins of Fort Pike, and the area situated on both sides of U. S. Highway No. 90 at the Rigolets Pass, which connects Lake Pontchartrain with Lake Borgne and Mississippi Sound.

The Fort Pike area consists of 125 acres, intersected by three canals with outlets into Lake Pontchartrain which offer a fine harbor for motorboats on the North side of the highway. On the South side of the highway a dredged basin forty feet deep affords accommodation for larger yachts.

In addition to Fort Pike, the Louisiana Purchase Memorial Park would include Fort Macomb located also on U. S. Highway No. 90 at Chef Menteur Pass which connects Lake Pontchartrain with Lake Borgne and Lake Catherine. Between the two forts lies a concrete highway nine miles long with a 300 foot right-of-way. At the present time the concrete slab is only 20 feet wide but plans of the Highway Commission provide for an additional twenty foot slab.

Fort Macomb, which was purchased by the State of Louisiana from the Secretary of War of the United States, has been claimed by the Motor League of Louisiana through a title derived from French Grants in 1769. A Bill is now pending before the Legislature of Louisiana to remedy this situation.

The Fort Pike area has been partially developed by the Orleans Parish ERA but a WPA project approved by the Washington WPA authorities was not undertaken by the local WPA management for the reason that the site, although within the corporation limits of the City of New Orleans, is situated thirty miles from sources of labor in the city.

The State Parks Commission is now endeavoring to secure the cooperation of National Park Service in the development of all three sections of the Louisiana Purchase Memorial Park, namely, Fort Pike, Fort Macomb, and the nine mile parkway between the two forts. This park would have some of the features of a wayside park and a parkway, in addition to the historical interest in the two forts, and would likewise serve as a

(Continued on Page 18)

Drive in Longfellow-Evangeline Park

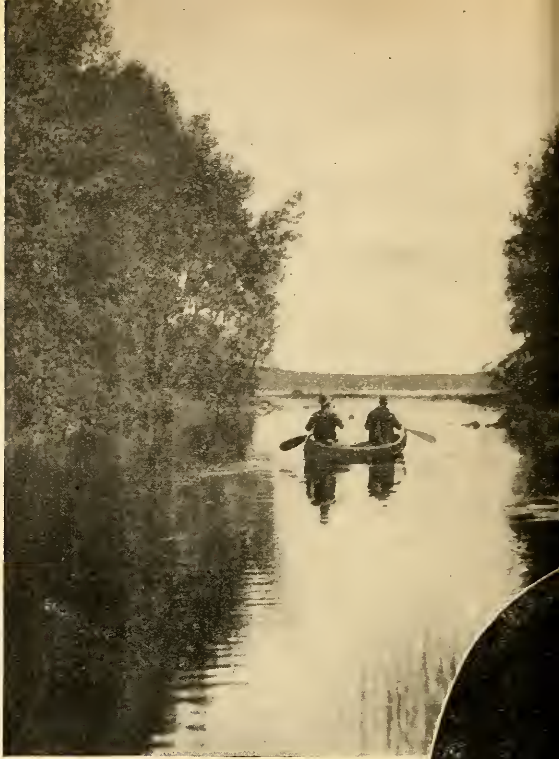
The LURE *of the* RIVER*

By
HENRY S. CURTIS

"The best vacation I ever had," said my friend, "was a summer cruise on the Mississippi River. One summer when my two boys were in high school in St. Louis, we shipped a flat-bottom boat up the river to Minneapolis and followed a few days later by train. On our arrival there, we rigged up the boat with a canopy to protect us from the sun and bought a supply of books and magazines. When we were once fairly launched, we read or swam or fished or watched the scenery drifting by according to our moods. If the fishing tempted or the views especially appealed, we anchored for a time. One of us was always on duty to guide the boat and watch for interesting things to do and sights to see; the rest of us did as we pleased.

"We were about three weeks descending the river to St. Louis, and we enjoyed every minute of it. We caught more fish than we could eat, almost without effort. At night we camped on the shore. We bought milk and vegetables from the farmers and prepared our own meals. Occasionally we went ashore in some interesting country or city to explore or for a meal, but outside the ticket to Minneapolis and the freight on the boat, the three weeks on the river cost us less than three weeks at home. We had plenty of open air and sunlight, and we did enough rowing to put us all in fine condition by the time we reached St. Louis."

There are hundreds of such river trips that may be taken in America. A boat on the river has an advantage over a lakeside cottage in that it has an ever-changing panorama. The lake is a passive factor in the landscape, merely a big pond, or reservoir, but a river is an active force, the mightiest in all the world. It is always interesting to watch; it "seizes the hills in its hands and carries them down to the ocean"; it over-



Waters that are used—the winging water routes of the Superior beckon the canoeist.

All kinds of "lure" along the South Fourche River, Arkansas.

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*Courtesy, AMERICAN FORESTS, the Magazine of the American Forestry Association.

Banks of beauty line the calm waters of the Kentucky River in the Cumberland National Forest.

And the eternal lure of rod and line is met here on a little river in West Florida.

flows and builds a rich alluvial valley; it changes its channel and makes islands and sandbars.

The river has its appeal to almost every interest. If one loves nature, there are the herons, bitterns, kingfishers, ducks, sandpipers, swallows and martins, the muskrats, and many other animals that appear along the bank in the early morning and evening; and then there are the water plants, with their many adaptations to the river and its current. On the larger streams, the life of the river itself is of endless interest. There are the river steamers and barges, the row boats, sail boats, motor boats and pleasure boats, and boathouses, the quaint houseboats, the riverside squatters and bootleggers, and there are the riverside parks and bathing beaches of the town.

If one is interested in engineering, along many of our rivers he may see works of great magnitude under construction, to turn the current into electricity, to prevent erosion or to maintain the channel. Then there are the dams and locks to sustain the water levels for transportation, levees to hold flood waters, and great irrigation projects. On many rivers, there are sewage disposal plants to keep the water sanitary. The rivers of America are much more interesting in 1936 than they were in 1929 on account of the public works that have grown out of the depression. During the last decade, great tunnels have been built under many rivers and over others bridges of a magnitude not dreamed of in earlier ages. Many of these structures offer wonderful views.

Somewhere along the shore, there is apt to be a railroad making use of the grade that the river has excavated. Where the banks are high, there are often fine residences. Riverside drives and parks, like a chain of pearls, are beginning to decorate many streams, which in the morning and evening, with their over-arching trees and grassy meadows, offer beautiful vistas and reflections.

The finest guide book that I ever saw is the book of the Rhine. Going up the river from Coblentz on one of the river steamers, one may easily recognize from the pictures and descriptions the historic castles, battlefields and public monuments. Many of our rivers deserve a guide book but with us it would need to be rather a guide to public works and industries, to the commerce of the river and to its fauna and flora.

In a study of the activities of the children in Canadian camps, "a long canoe trip" ap-

(Continued on Page 26)

STATE PARK DEVELOPMENT

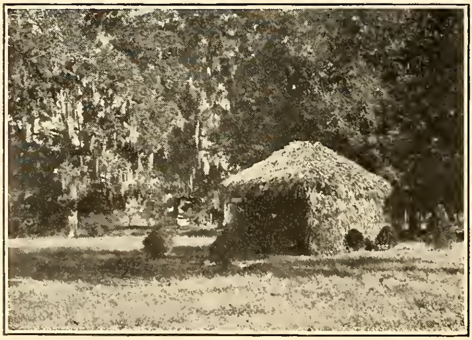
(Continued from Page 15)

tree culture demonstration project along the nine mile parkway and a wild life demonstration project would be afforded in the Fort Pike area where approximately 50 acres of muskrat marshlands are located. Furthermore, the park would be surrounded by a great aquatic recreational reserve where the finest of game fishing is available, besides swimming, yachting and other aquatic sports.

The proposed Chalmette National Park will be located about ten miles from Fort Macomb and a Memorial Parkway could be developed between these two points.

CHEMIN-A-HAUT STATE PARK

Development of this first major State Park, which consists of 500 acres located at the confluence of Bayou Chemin-a-Haut and Bayou Bartholomew, about ten miles Northeast of the Town of Bastrop in Morehouse Parish and about a half mile East of State Highway No. 204, was begun in January, 1936, by a 200 man CCC camp under the technical supervision of National Park Service. Over 200,000 bricks have already been purchased and transported to the park site for the construction of the lodge. Plans have already been submitted for construction of five vacation cottages during the six months work period beginning July 1, 1936. Five additional cottages will be constructed during the period beginning January 1, 1937. Projects already approved consist of transportation of material, obliteration of trails, mosquito control, eradication of poisonous weeds, channel clearing, fire hazard reduction, fire breaks, topographical surveys, lineal surveys, park roads. Projects to be submitted later to complete recreational facilities in the park are bathhouse, sanitary conveniences, lodge, trailside shelters, boathouses, keeper's lodge, power line, drinking fountains, artesian wells, tank and tower, beach tables and benches, beach improvement, parking areas and picnic-grounds development.



The Woods—Longfellow-Evangeline Park

Looking West down Bayou Bartholomew—Chemin-A-Haut Park

AVOYEL INDIAN AND BOGUE FALAYA WAYSIDES

These two waysides consist of a 34 acre tract near the Town of Marksville in Avoyelles Parish and 13 acres near the Town of Covington in Tangipahoa Parish which have been partially developed by the CWA and have been transferred to the State Parks Commission by the Towns of Marksville and Covington, respectively. As soon as the Legislature appropriates funds for operating expenses, the State Parks Commission will formally open these two sites to the public and undertake their further improvement. They are both located on picturesque streams affording facilities for fishing, swimming and other aquatic sports.

PROPOSED MAJOR PARK SITES

One of the finest prospective park sites already inspected in a statewide survey by officials of the National Park Service and the State Parks Commission is the proposed Chicot Lake State Park in Evangeline Parish between the towns of St. Landry and Ville Platte. A bill has been introduced in the current Legislative session to provide a special appropriation to purchase this site and favorable action on the bill is expected.

While it will not be possible for the State Parks Commission to purchase other major State Park sites during the next two years, it is hoped that one or more of the following sites may be acquired during that period either by donation or local contributions, namely:

A site on Lake Bistineau which lies in the Parishes of Bienville, Bossier, and Webster and which has already been partially developed by the Department of Conservation as a fish and game preserve.

(Continued on Page 27)

Some Wild Flowers of Louisiana

Part VI

Weeds of Louisiana

By
CLAIR A. BROWN
Associate Professor of Botany, Louisiana State University

The term "weed" has been used so generally that it has acquired many meanings as can be seen by the following statements. One of the usual definitions considers that a plant growing where something else is desired or, stated in another form, a plant out of place, is a weed. Another concept is that a plant which exerts some harmful effect upon other plants or animals is a weed. To many people, the plants which produce beautiful blossoms are "Wildflowers" and the unattractive one are "weeds". The term has also been used to designate a plant for which no economic use has been discovered. Noxious weeds have been defined by the Louisiana legislature* as those "that are undesirable on farm lands or pastures and that are especially difficult to eradicate or that may injure the quality of the farm crop, with which they may become mixed, or that may injure the quality of milk, meat or other produce of animals consuming such noxious weeds or bulblets . . ." Weeds are the gypsies of the plant world which have the ability to make themselves at home wherever they come to rest.

Weeds are important because they affect the general health and prosperity of the nation. They are responsible for reduced crop yields and, consequently, reduced incomes to many people. L. H. Pammel placed the losses in Iowa at a conservative estimate of *fifty-million dollars* annually. Worst of all, a portion of this loss, at least, could be avoided.

Let us see how weeds affect the Louisiana Farmer. The last census report lists 170,216 farmers in the State and 10,444,288 acres of agricultural land. One can easily see the enormous losses if we estimate the loss per farmer at fifty dollars per year, or a loss of one dollar per acre.

There are many ways in which weeds cause losses. They consume natural nutrient material from the soil as well as fertilizer intended for the growing crops. Why spend money on fertilizer to grow weeds? Weeds consume moisture necessary for the growing crop and in time of drought the water used by them may mean the difference between profit and loss. "Weed drought" may be as serious in producing a crop failure as an actual drought. A single corn plant uses more than a barrel of water in its growth and development. Weeds such as the Tie Vine, which climb over the crops, tend to bind, weight down, and prevent normal growth, thus reducing the yield. They increase the cost of cultivation and at the same time interfere with the proper cultivation of crops.

Weeds are able to exist where other plants fail to develop properly and on the hill soils of Louisiana, large quantities of weeds are often good indicators that the valuable top soil has been lost from the fields through erosion. They are often stunted and widely spaced on the eroded soil because the nutrient materials have been lost and the water-holding capacity of the soil has been reduced.

Farmers know that the milk of cows which feed upon Bitterweed (*Helenium tenuifolium*) will taste bitter. It is not an uncommon experience to have milk rejected at the creamery because of its bitter flavor. It does not take many losses of fifty to one hundred pounds of milk to take the profit out of the dairy industry.

Some weeds are poisonous to man and his livestock and some may secrete substances in the soil which are poisonous to other plants. Poison Ivy, Poison Oak, and Poison Sumach are a few plants which are well known for the painful eruptions which come from contact with these plants. The Bull Nettles (*Bivonea stimulosa* and *B. texana*), widely known in the pine hill sections of the State, cause intense discomfort for short periods of time when one brushes against them. The pollen from the Giant Ragweed (*Ambrosia trifida*) as well as that from many other plants, is responsible for hay fever which causes great suffering.

Weeds harbor insects which are injurious to crops, as many serve as hosts for certain insects when the crop which they attack is not in the field. In some cases, weeds are hosts for parasitic fungi which attack crops.

The presence of certain weeds lowers the sale value of farm land because progressive farmers will not pay as much for weedy land as they will for land free of weeds.

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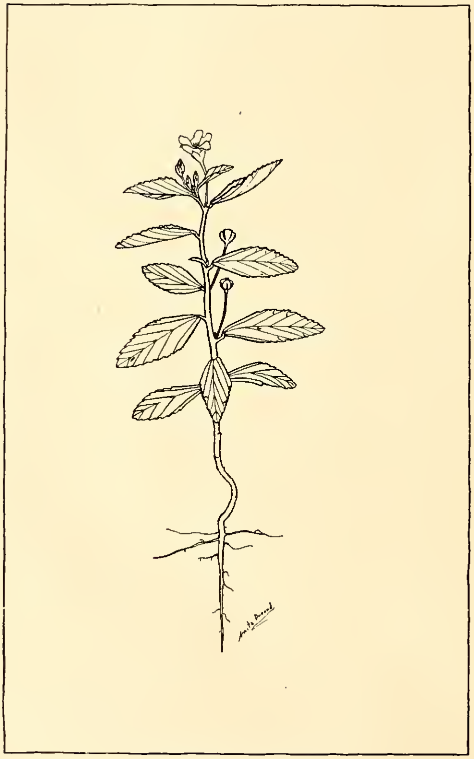
*Act No. 308 of 1926. House Bill No. 266. To regulate the selling, offering or exposing for sale of Agricultural seed.

The presence of weed seeds in harvested crops results in losses to the producer. Millers will not pay prevailing market prices for grain which contains large amounts of weed seeds. If the dockage on the price of rice averaged one cent a bushel because of the weed seeds present, and it may be more, weeds cost the Louisiana rice farmers in 1934 nearly one hundred fifty-six thousand dollars. Figures published by the Grain Inspection Department of Minnesota show the presence of 19 ounces of weed seeds in a bushel of wheat. The annual production of small grains in that state is over two hundred million bushels. If one cent a pound were deducted for the presence of weed seeds, the loss to the farmers would be over two million dollars.



IRONWEED, TEA WEED
Sida carpinifolia L.f.
Mallow Family **Malvaceae**

This weed is commonly known in Louisiana as Tea Weed and Ironweed. It is called Ironweed because its stems are so hard to pull up and are difficult to cut with a hoe.

It normally lives only one season, although if the winter is mild, it will live two or more seasons. Weeds which live only one season can be controlled by preventing the formation of seed.

It is an annual plant from six to twenty inches high. The alternate, gray-green leaves are broadest at the middle and are wedge-shaped at each end. It produces small copper-colored flowers in the axils of the leaves. The fruit is composed of a ring of 8-10 carpels each with two short spines.

It blooms from spring until frost.

At least two other species of **Sida** occur in Louisiana. **S. spinosa** is distinguished from **S. carpinifolia** by longer petioled leaves and by the flower which has five carpels. **S. rhombifolia** has only one spine to the carpel and 10-12 carpels to a flower.

Widely distributed in Louisiana, most abundant around barnyards, roadsides, and margins of cultivated fields.

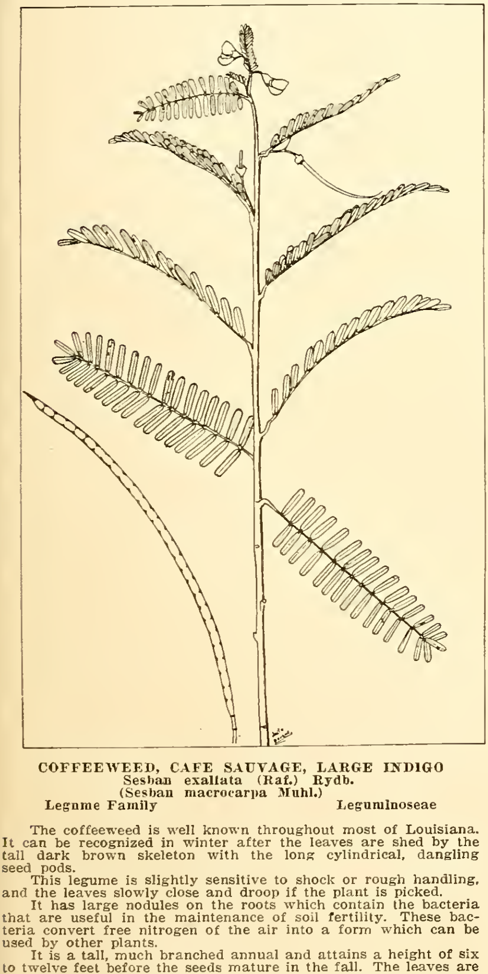
Explanation of plate: Figure one-half natural size.

Weeds spread in many ways. Many have specialized structures which aid in the dissemination of their seeds. Many depend upon the wind for transportation and therefore are equipped with parachutes of downy plumes which enable them to float through the air. Some of these hoboes of the plant world hitch-hike by the means of barbs, hooks, teeth, and sticky substances which aid them in catching a ride on the clothing of man or in the fur and wool of passing animals. Man, however, has been the biggest distributor of weeds in cultivated soils by the use of seed which contains many undesirable seeds.

There are several ways of controlling weeds which center around their life histories. Some plants grow from seed, flower, and produce another crop of seed, all in one season; these are called annuals. Winter annuals are those whose seeds germinate in late fall, grow during the winter, and die out when the hot season arrives. The mild climate of Louisiana is favorable for the growth of many winter annuals. These start growth in November and December and continue to grow throughout the winter, if it is not too cold. Biennial plants take two years to produce a crop of seed. Perennial plants grow for several years and after the first year, produce seed every year.

One of the best ways to control weeds is to prevent them from forming seeds. This is particularly true with annual plants as seeds are the only means by which these plants may be perpetuated. Experiments have shown that many seeds will lie dormant in the soil several years before they germinate; therefore, it is necessary to destroy the weeds for several seasons before the results of the eradication may be distinctly noticeable. Biennials and perennials are not always easily destroyed by cutting off the tops, as the roots and underground stems contain enough stored food to enable them to send up new flowering shoots. Experiments in Texas under conditions very similar to those in Louisiana show that the mowing of pastures three times a year for three or four years has resulted in eradication of some of the most noxious weeds in the pastures and at the same time has not harmed the desirable forage plants. Plowing of fallow fields during the dry, hot summer months will result in destruction of many perennial and biennial weeds because their roots cannot withstand many days of hot, dry weather. Planting dense crops will often shade out many weeds. There are only a few weeds which will grow in the shade of some of the sugar-cane varieties. The use of fallow fields as pastures has not been successful in eradication of Red Rice from the rice soils. Hand pulling of weeds is practiced in the rice fields, but is a tedious and expensive operation. Many weeds can be eliminated by proper rotation of crops.

The use of chemicals to kill weeds is expensive, but the results often justify the expense on small areas. Kerosene, salt, iron sulphate, copper sulphate, carbolic acid, potassium and sodium chlorates, and arsenites have been successfully used in the destruction of different weeds. The following treatments have been recommended for the control of weeds on lawns, the success of which depends upon the kinds of weeds, the moisture, and the temperature conditions. One and one-half ounces of sodium chlorate in a gallon of water sprayed on the lawn at the rate of one gallon to one hundred square feet will kill most weeds without injuring the grass. Chlorates may become inflammable in contact with organic matter and care must be used in handling them.



COFFEEWEED, CAFE SAUVAGE, LARGE INDIGO
Sesban exaltata (Raf.) Rydb.
(Sesban macrocarpa Muhl.)
Legume Family **Leguminoseae**

The coffeeweed is well known throughout most of Louisiana. It can be recognized in winter after the leaves are shed by the tall dark brown skeleton with the long cylindrical, dangling seed pods.

This legume is slightly sensitive to shock or rough handling, and the leaves slowly close and droop if the plant is picked.

It has large nodules on the roots which contain the bacteria that are useful in the maintenance of soil fertility. These bacteria convert free nitrogen of the air into a form which can be used by other plants.

It is a tall, much branched annual and attains a height of six to twelve feet before the seeds mature in the fall. The leaves are pinnately compound with 12 to 30 pairs of leaflets. The pea-shaped flowers are yellowish to brownish-red in color and are often mottled. The fruit is a long slender pod eight to sixteen inches in length.

It blooms from June to October.

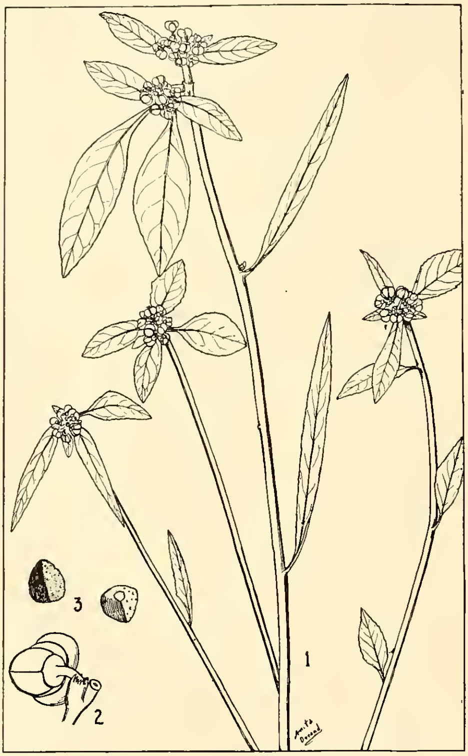
Widely distributed in Louisiana, especially abundant along roadsides, in cultivated fields and in waste places.

Explanation of Plate: Figure one-half natural size.

Ammonium sulphate applied at the rate of six pounds to one thousand square feet of lawn will kill the tops of weeds when dusted on while the weeds are wet with dew. A thorough sprinkling should be done a day or two later to prevent burning of the grass. Best results are obtained when the chemicals are applied directly to the cut roots or underground stems, but if applied too strong, they will kill the surrounding plants. Poisons have been used extensively in the destruction of the Water Hyacinth in some of our canals and bayous. Many of the railroads have special weed-killing equipment, a car which is so constructed that live steam and chemicals can be sprayed on the plants along the right-of-way.

The best way of controlling weeds is to prevent their introduction into the field by the use of pure seed. Many states have passed laws to regulate the sale of agricultural seed for planting purposes. Iowa prohibits the sale of seed which contains seeds of specified noxious weeds in excess of one seed or bulblet to each five grams of most grass seeds, and one in one hundred grams of seeds larger than wheat.

In Louisiana, dealers must tag their seeds, whether in bulk or in packages, if over ten pounds, with a tag giving the percentage and kinds of seeds present, germination of the agricultural seed, date tested and year that the seeds were grown. This insures the sale of fresh seed and at the same time informs the buyer of the weed content. The State maintains a laboratory for the determination of the purity and viability of the agricultural seeds. It is under the direction of Mr. A. P. Kerr and his assistants who are stationed at the Louisiana State University, Baton Rouge. Here are some examples of material sent in for testing: White Clover—pure seed 98.52%, trash 1.29%, weed seeds—.19%, germination 81.76%, hard seed 15.27%. Among the weeds were seeds of Bermuda grass, Wild Canary grass, May weed, Evening Primrose, Hedge Mustard, Plantain, and Pigweed. In another sample of White Clove, pure seed amounted to 93.14%, trash 4.91%, weeds 1.53%, crop seed 0.42%, germination 59.61%, hard seed 9.31%. In a test of Lespedeza, pure seed was 93.40%, trash 2.70%, weeds 4.46%, grasses 0.44%, germination 40.65%, hard seeds 48.00%. Weeds present were Crabgrass, Poor Joe, Tea weed, and Knotweed. The percentages given are by weight and while the percentage of weed seeds looks small, it must be remembered that the seeds are small and it takes a large number to equal one per cent of a three-gram sample. Cheap seed may be expensive in the long run if the germination is low and the percentage of weeds high.



WILD POINSETTIA, SPURGE
Poinsettia dentata (Michx.) small
(Euphorbia dentata Michx.)
Spurge Family **Euphorbiaceae**

Every one in Louisiana is familiar with the cultivated Poinsettia which is so universally used in Christmas designs, but few know its wild relative. The wild poinsettia does not have upper leaf-like bracts which turn red. Also it is not attractive, and only those who have had experience with it in cultivated fields are apt to know it. It is a serious pest in sugar cane fields, where it is commonly known as milkweed.

The branched stem reaches a height of two to three feet. A milky juice oozes out of the stems and leaves where they are bruised. The leaves are quite variable in shape, linear, to ovate, and occasionally fiddle-shaped. The flowers are inconspicuous. The pistillate flower is stalked and droops from the cyanthium. A stalked gland is quite conspicuous on the fringed margin of the cyanthium, and this is the chief character that separates this species from other closely related ones. The seeds are roughened.

It blooms from September to frost.

Widely distributed in southern Louisiana on alluvial soils.

Explanation of Plate: Figure 1, one-half natural size. Figure 2, Cyanthium with stalked gland and capsule. Two and one-half times natural size., Figure 3, Seeds. Two and one-half times natural size.

Many methods of eradication have been advocated for specific weeds in various publications, but this subject will not be discussed at this time.

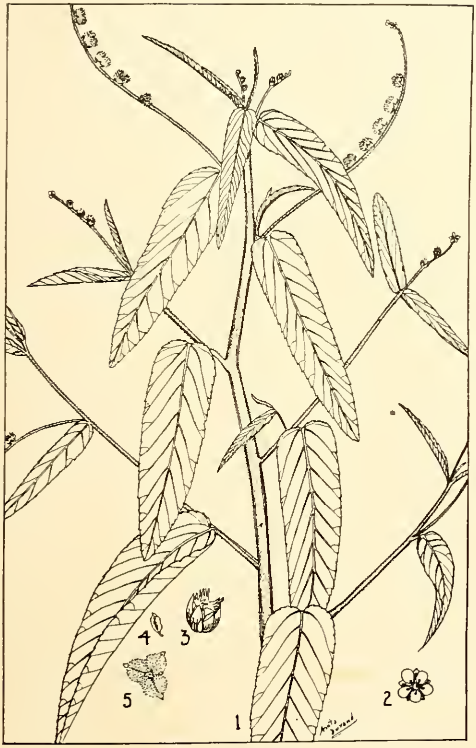
One of the outstanding features of the vegetation of the state is the abundance of weeds which, for the most part, are universally distributed. In traveling through the state, one cannot help but notice the quantities of weeds along the roadsides, to say nothing of their abundance in cultivated fields.

The following is a partial list of some of the most common weeds in the State:

Johnson grass	Sorghum halepense
Crab grass	Syntherisma sanguinale
Dallis grass	Paspalum dilatatum
	Panicum dichotomiflorum
Barnyard grass	Echinochloa Crus-galli
Nut grass, Coco grass	Cyperus rotundus
Goose grass, Crowfoot	Eleusine indica
Turtle Back	Commelina longicaulis
Water Hyacinth	Piaropus crassipes
Yellow or Curley Dock	Rumex crispus
Fiddle Dock	Rumex pulcher
Engelmann's sorrel	Rumex hastatulus
Pigweed	Amaranthus hybridus, A. spinosus
Alligator weed	Alternanthera philoxeroides
Chickweed	Alsine media
Corn spurry	Spergula arvensis
Mexican poppy	Argemone mexicana
Pepper grass	Lepidium virginicum
Partridge pea	Chamaecrista fasciculata
Coffee weed	Sesban exaltata
Sensitive joint vetch	Aeschynomene virginica
Goatweed	Croton capitatus and others
Caperonia	Caperonia castaneaefolia
Bull nettle	Bivonea stimulosa, B. texana
Snow-on-the-Mountain	Lepanderia marginata
Spurge	Chamaesyce hyssopifolia
Milkweed	Poinsettia dentata
Pepper vine	Ampelopsis arborea
Tea weed	Sida carpinifolia, S. rhombifolia, S. spinosa
Loosestrife	Lythrum lineare
Parrot's feather	Myriophyllum proserpinacoides
Persimmon	Diospyros virginiana
Morning glory	Ipomoea trifida
Tie vine	Thyella tamnifolia
Dodder	Cuscuta gronovii and others

Buffalo bur	Solanum rostratum
Horse nettle	Solanum carolinense
Turk's turban	Siphonanthus indicus
Henbit	Lamium amplexicaulis
Devil's pin cushion	Leontis nepetaefolia
Mullen	Verbascum thapsus
Honeysuckle	Lonicera japonica
Mexican clover	Richardia scabra
Poor Joe	Diodia teres
Sphenoclea	Sphenoclea zeylanica
Cocklebur	Xanthium americanum

Giant ragweed	Ambrosia trifida
Rough Marsh elder	Iva ciliata
Yankee weed	Eupatorium capillifolium
Fleabane	Erigeron annua, E. ramosus, E. philadelphicus
Horseweed	Erigeron canadense
Parthenium	Parthenium hysterophorus
Niggerhead	Rudbeckia amplexicaulis
Bitterweed	Helenium tenuifolium
Mayweed	Anthemis cotula



CAPERONIA
Caperonia castaneaefolia (L.) St. Hil.
Spurge Family **Euphorbiaceae**

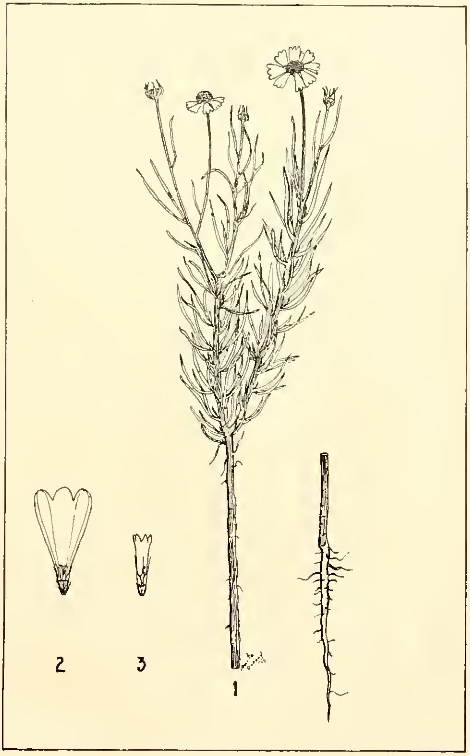
This plant is probably a recent immigrant to Louisiana from the tropics, and has never been reported from Louisiana before. It was first noticed along the levee of the Mississippi River but in the past six years it has spread back from the river for several miles. There is some danger that it will be another pest which the farmers will have to combat, particularly on the bottom land soils.

It is a coarse, straggly-branched, usually erect weed from 3 to 5 feet tall. The stems are covered with rough, whitish hairs. The leaves are bright, shiny green with coarse-toothed blades. The flowers are tiny and of two types, staminate and pistillate. The mature, three-parted capsule is spiny on the top and sides.

It blooms from mid-summer to frost.

Complete data concerning the distribution of this species are lacking. It has been found along the Mississippi River levees, bottom lands ,and on the bluff soils in East Baton Rouge Parish. It is common in the rice fields in Acadia Parish and in alluvial soils of Iberia Parish.

Explanation of Plate. Figure 1: One-half natural size. Figure 2: Staminate flower, 3½ times natural size. Figure 3: Pistillate flower, 3 times natural size. Figure 4: Petal 8 times natural size. Figure 5: Fruit 1½ times natural size.



BITTERWEED
Helenium tenuifolium Nutt.
Composite Family **Compositae**

The golden yellow flowers that line the roadsides in late summer and fall are those of the Bitterweed. Back from the roadside in protected places where it is not coated with dust, the Bitterweed is attractive because of the beautiful flower cluster. It, however, is disliked by the farmers as it gives a bitter taste to milk when eaten by cattle.

It belongs to the largest family of flowering plants, the Compositae, and is close kin to the asters, sunflowers, daisies, and goldenrods. The part which one commonly considers the flower is not a single flower, but a cluster of many flowers. Each of the conspicuous structures which resemble petals are individual flowers called "ray flowers' and those in the center of the cluster are called "disk flowers".

It is a low, much branched plant 12 to 20 inches high with numerous linear leaves. The flower clusters are yellow, about three-fourths of an inch broad, with conspicuous yellow rays.

It blooms from mid-summer until frost.

It is widely distributed in Louisiana, and especially common along roadsides, and in waste places.

Explanation of Plate. Figure 1: About one-half natural size. Figure 2: Ray flower twice natural size. Figure 3: Disk flower twice natural size.

Prickly lettuce	Lactuca scariola
Wild lettuce	Lactuca ludoviciana

Mexican clover, Sorrel, Dwarf Carrot and Poor Joe are especially abundant in the pine hill sections of Louisiana. Wild Indigo or Coffeeweed, Sphenoclea, Caperonia, Barnyard grass, Aeschynome and Red Rice are common in the rice fields on the prairie soils. Giant Ragweed, Dock, Cocklebur, Caperonia, Alligator weed, Spurge, and Milkweed are abundant on the alluvial soils.

There has been very little research on the weeds in Louisiana. W. R. Dodson[2] published a paper in 1900 on some of the common weeds in the rice fields. Since that time, practically no studies have been made of the weeds of the State. The people of Louisiana need specific information about the distribution, abundance, and methods of control of specific weeds which appear year after year in various crops. Certain of these weeds are more undesirable than others and it is these particular weeds which should be studied first. The Alligator Weed (*Alternanthera philoxeroides*), illustrated in The Louisiana Conservation Review, Vol. 4, No. 7, p. 24, 1935, is an example of a weed which is getting to be more and more of a pest. It is very troublesome to strawberry farmers and is common in lawns in New Orleans. It clogs the bayous and canals as efficiently as does the Water Hyacinth. We have no specific knowledge of how to control it. The underground stems penetrate to a depth of four feet. It spreads readily as broken fragments of the stem take root easily.

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[2] Pt. 11, Rice weeds in Louisiana. 402-437. Sec. Series No. 61 Bull. Agri. Exp. Station of the La. State Univ. & A. & M. College. 1900.

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NATURE GUARDIANS CLUBS

(Continued from Page 13)

We pressed and mounted flowers to be able to keep them.

We mounted seeds, classified them as to means of transfer and wrote stories about them.

We grew bulbs in the room and took care of several ferns and cactus plants which the children brought to the class.

The museum and the scrap book interested the children in making collections and scrap books of their own.

To illustrate further the interest in nature that grows out of the Nature Guardian Club work, and how this interest in nature motivates school work in the subjects, I would like to mention a unit of work in Language. Led by the student teacher in charge, the children studied several long poems for appreciation. Next, they studied several short poems to learn how poems are constructed. Then, they constructed original poems, and, to the delight of the teacher in charge, most of the subjects for their poems were from nature—seeds, flowers, trees, birds, brooks, rain, sunshine and pets.

This semester we're centering our interest in gardens—what to plant, when to plant, how to plant. We plan to map out several trails in Lafayette, follow them and observe gardens, noticing whether or not the arrangement of beds, shrubs and trees makes a well-balanced picture, or background for the home. We plan, also, a flower exhibit, hoping that the flowers will come from our own gardens. In connection with the exhibit, we'll study effective arrangement of flowers in vases.

It may seem that the study of plants is being emphasized to the exclusion of other phases of nature. In any unit of work there must be a "center of interest" around which activities are planned. It is impossible to study plants exclusive of a study of soil, climate, seasons, insects, birds, and man. It is impossible to make a study of birds exclusive of a study of plants, insects, seasons, climate and man. Knowledge and appreciation of this inter-relation is necessary for a better understanding of the importance of conservation.

I am quite sure that any boy or girl whose mind has been opened to the great outdoors through the Louisiana Nature Guardian Club, and made constantly alert to the marvelous ever-changing phenomena of the natural world, will not pass through it blind to its wonders and beauties, unappreciative of the value of its natural resources, or unmindful of the duty to conserve these natural resources.

HARDY PALMS OF SOUTH

(Continued from Page 11)

While one of our hardiest and most decorative palms, *Sabal palmetto,* is a native of the Carolinas, where it develops into beautiful specimens of from 40 to 50 feet high, this same palm refuses to grow in the same latitude further west.

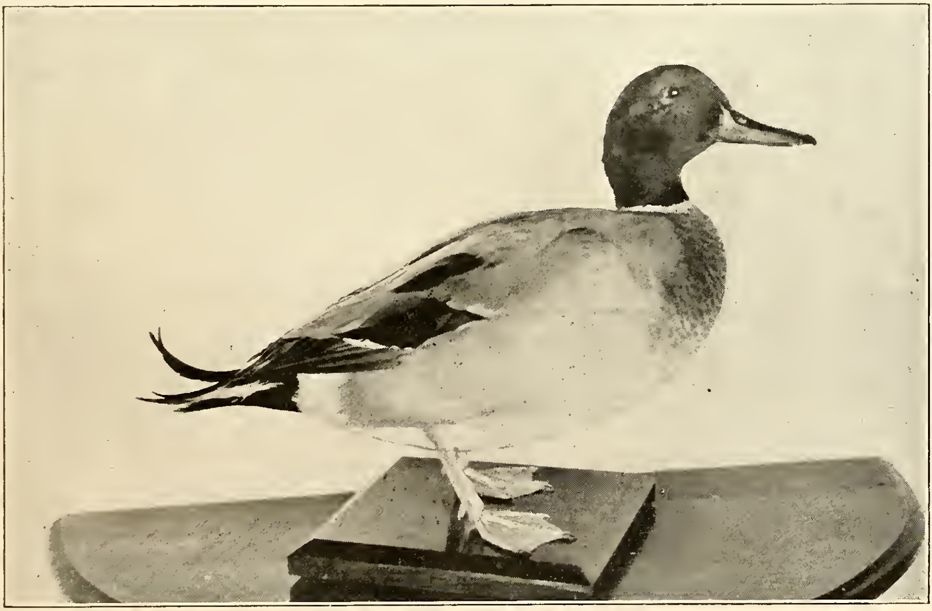
With the assistance of the U. S. Weather Bureau, whose courtesy is herewith acknowledged, the writer has established a PALM BELT for the Southern states. The northern boundary of this belt, within which palms may be planted in the open, runs approximately from the coast of South Carolina through Central Georgia, the southern part of Alabama, along the Mississippi Gulf coast, across southern Louisiana and central Texas. From San Antonio west only the warmer sections of New Mexico and Arizona could successfully plant palms in the open, while all through southern California and up the coast to Oregon tropical effects have long been produced with palms in the open ground.

California has given us several hardy palms of which we might mention the blue palm, *Erythea edulis glauca,* and several species of Washingtonias. Though not considered natives of California, these palms have found their way across the Atlantic and were known in Europe before any of them had found a foothold in our Southern states. The writer saw the first *Washingtonia filifera* under the name of *Pritchardia filamentosa* in Germany in the summer of 1879, where it was offered as a novelty.

THE SWAMP

Palmetto under-spreads with sword-edged leaves
The mourning mystery of cypress trees;
Small furtive life that sinuously flees
Scarce rifts the slow dark stream that smoothly weaves
Through hyacinths whose beauty it receives
And gives. On long thin wings the heron lifts
While far below his languid shadow drifts
And gray moss drips from humid forest eaves.
The harp of color, muted, softened, here
Is toned to subtle change of water and shade;
The high-arched sky is like a pearl-lined shell
But scantly seen where reaching tree-tops clear
The looping grace of vine and leaf and blade—
And breathless silence rings a silver bell.

—EARLINE HESTER HARPER.



MALLARD—PINTAIL HYBRID

This unusually fine specimen was shot by Mr. John T. Upton at Avoca Island near Morgan City, Louisiana, November 24, 1935. It is a male hybrid between the Common Mallard or French Duck, ANAS PLATYRHYNCHOS PLATYRHYNCHOS (Linnaeus), and the highly prized American Pintail or Sprig, DAFILA ACUTA TZITZIHOA (Vieillot). It has been mounted by the Department's taxidermist, Ambrose Daigre, and is now on exhibit in the Museum of the Department of Conservation. An examination of the specimen is necessary to convey the beautiful blending of the colors and patterns of the two familiar species of ducks into this beautiful hybrid.

THE LURE OF THE RIVER

(Continued from Page 17)

peared as the most popular sport. Stevenson's *An Inland Voyage*—a trip by canoe through the canals and rivers of Belgium and France—is known to many. There are at least two hundred rivers in America that are better suited for such an adventure. Yet out of 2,238 "long" trips of the children of Ann Arbor last summer, there were only two canoe trips.

A river offers a wonderful opportunity for a cheap vacation, with much of novelty and adventure. There is no better way that a scout troop or an aquatic family, if its younger members are not too young, can spend a week or two. Instead of a paltry hundred or so, there should be thousands of high school and college boys and girls taking river vacations every summer.

The rivers were the main thoroughfares of the Indians, the trappers, and the early explorers. They largely determined the location of the early settlements. In the law, a river that is commercially navigable is considered public property and is placed under the War Department. But there are only a dozen or so rivers in America that carry a significant amount of commerce, while there are hundreds of rivers that are important as highways for pleasure craft and for swimming, fishing, picnicking and camping. There is much more reason for setting aside these rivers as public property under some appropriate authority than there ever was for declaring the others public. Perhaps all we need to do is to classify as navigable any river that will float a canoe.

What do we mean by calling our small rivers private property? The water does not belong to any one, nor do the fish as they are here today and there tomorrow. The riparian owner has no advantage from his ownership unless he wishes to build a dam or a bridge. We have an excellent example of the evils of private ownership on the Huron River at Ann Arbor. For ten miles above the city the river is the most intensively used area in the country for fishing, swimming, boating, picnicking and camping, but the Michigan Central Railroad has two low bridges across the river with the girders within a foot of the water, which require difficult and dangerous portages. There is a dam also that requires a portage, and there are two or three riffles that need dredging. The popularity of the river for our ten thousand students would be more than doubled if the bridge girders were turned up instead of down and some easier portage were provided about the dam. In the ten-mile stretch of the river between Ann Arbor and Ypsilanti, the river is so defiled with sewage that it is a public offense. There should be some public body—a conservation board of park board—with authority over these streams. Any one wishing to build a bridge or a dam should be required to submit specifications showing provisions for the clearance of boats. The same body should have authority to order a city under its jurisdiction to remove sewage from a river and to prevent contamination of its water by industrial waste. The development of small rivers could well be placed under the state park or conservation departments.

The only flower planted by the American Indians was the lotus. There are lotuses of nearly every color, which would flourish in most of our rivers and which are worth a day's journey to see; there are water lilies that are red, pink, white, yellow and lavender, all of which offer food and shelter for fish and muskrats. Why should we not make our rivers beautiful as well as useful?

It will take promotion and gradual development, but, if our rivers are beautified and boats provided at headwaters for downstream cruises, with camp sites provided along their courses, they would soon become popular, and the tourist gold brought into the state would more than justify the expenses involved.

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STATE PARK DEVELOPMENT

(Continued from Page 18)

A site on Clear or Saline Lake in the Parishes of Winn and Natchitoches which lies within the Northwest Louisiana Fish and Game Preserve established in 1930 by the Department of Conservation.

Another site which would combine a fish and game preserve and a State Park would be Iatt Lake in the Parish of Grant about thirty miles Northwest of the Town of Alexandria.

Another North Louisiana site, which has already been inspected and tentatively approved, is situated on the Ouachita River near the Town of Columbia in Caldwell Parish, and a site in the Dolette Hills in DeSoto Parish would complete the prospective major State Parks located in the Northern half of the State.

In South Louisiana, besides the proposed Chicot and Chappapela Parks, the State Parks Commission has under consideration the eventual establishment of tSate Parks on False River in Pointe Coupee Parish which would serve the City of Baton Rouge and many towns in the surrounding parishes.

Although the State Parks Commission Engineer and Secretary accompanied the National Park Service Inspectors on an almost statewide survey of prospective State Park areas, State Park sites have not yet been located in Southwest Louisiana. It is proposed, however, to make a special survey in the near future for the purpose of selecting sites to serve the population centers in that section of the State.

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FIVE HUNDRED DOLLARS FOR ONE CROW

The readers of the *Louisiana Conservation Review* will be interested in the following item from the August, 1936, issue of *"Field and Stream"*:

"Imagine, if you can, collecting $500 for shooting one single crow. Yet it can be done, but only by a resident of Saskatchewan. And there are 855 other crows with $3,500 in all on their heads.

"W. F. Kerr, Minister of the Department of Natural Resources of Saskatchewan, recently announced a province-wide campaign for the control of crows and magpies. The Department trapped 856 crows, banded them with numbered bands and then released the birds in all parts of the province.

"Just that many crows are now at large ransacking duck nests and comporting themselves in true crow fashion, but in addition are dodging prize-seekers. Every one of those crows is worth money when he's taken. One is worth $500; 5 are worth $100 each; 10 are worth $50 each; 20 are worth $25 each; 40 are worth $10 each; 80 are worth $5 each; 700 are worth $1 each.

"This ought to be incentive enough for enlisting the cooperation of every ablebodied man in the province in controlling the hordes of crows which each springtime invade the waterfowl breeding grounds of the prairie provinces. It ought to reduce materially the numbers of these marauders in this region, and be productive of more ducks."

CALCULUS

The more they kill
Why the more there are
As easy to pencil
As golf at par.
If a million ducks
Fly south in fall
By slaughtering half
You will save them all.
We learned the trick
From a hunter true
Who assures us that one
Minus one leaves two.

—*Bird Lore.*

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Louisiana Nature Guardians

"Upon my honor, as a Louisiana Nature Guardian, I promise to take care of all our natural friends, to guard and protect them to the best of my ability, and as far as possible influence others to do the same."

HOW YOU CAN BECOME A NATURE GUARDIAN

YOUR PART

Consult your teacher.

Ask that the purpose and plans of the Nature Guardian Club be explained to you and the class.

Ask for an application card.

Get a responsible person to indorse it, after proving that you fully understand the duties of a Nature Guardian.

Sign the application and mail the card postpaid, or give to your teacher, to send with cards from all the class.

OUR PART

We send the application card.

We send you a handsome badge, a certificate of membership, Nature Guardian pamphlets, and other literature.

This is all free, and is carried on with the purpose of instilling in the children's minds a knowledge of Louisiana's wild life and a thorough understanding of its economic value to the State.

It also aims to develop individual humanitarianism. Even within this short time an amazing improvement has been made in the mental attitude of our young folks toward the conservation and protection of Louisiana's natural resources.

EDITORIAL

Another season, another vacation, another chance to learn more about our beautiful State and to become a finer Nature Guardian. How rich these golden summer days could be if each Guardian filled them with pleasant and profitable activities.

So many happy hours can be spent in the woods and fields reading the true and wonderful stories that Mother Nature writes so beautifully.

By such contacts you learn to love all natural things and to appreciate the colors, forms and sounds of the wild. Better than all, you will find a lasting fellowship with out-door life and Nature's harmony—something that will bless and enrich your whole existence.

So, Guardians, try this vacation to view the lovely objects of Nature with understanding minds and sympathetic hearts!

With sincere wishes for all,

THE EDITOR.

We have so many interesting letters this time that it is hard to select those to print. We are sorry, indeed, that we cannot use them all, but lack of space crowds many fine ones out of our Nature Guardian Corner. Here is one from Port Barre, Louisiana, that I am sure you will like to read:

DEAR EDITOR:

I am a pupil in the second grade of the Port Barre school. We have a primary science lesson twice a week at our school. Miss Banta takes us on field trips and we study about birds, snakes, crawfish, turtles, cocoons and flowers. We also work in the school garden with Miss Banta. We learn all about plants, trees and flowers from her, also about the insects that destroy them. We are going to study about ants next.

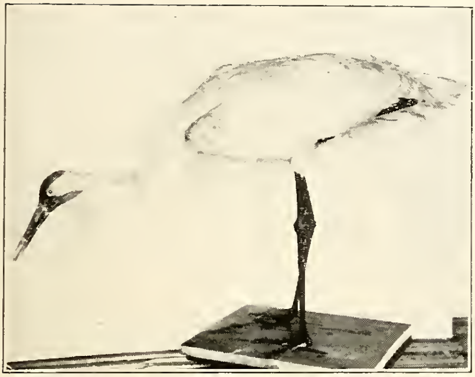
Sincerely yours,
JOHN LEBLANC.

Burleigh Sonnier tells us what he has learned about frogs:

We learned about frogs from our teacher. We went to a pond by the school to find eggs and watch them. I learned this: The frogs live in water and in holes. The frogs lay eggs. The eggs are held in a jelly. Frogs jump. Frogs have four legs. Frogs sleep all winter in the bottom of ponds and lakes. Frogs eat little ducks, chickens, insects and mosquitoes. Frogs are good to eat and they sell well. I will protect them.

Now here is a very spirited and patriotic letter from our old friends Patrick, Anthony and Gerald Breaux:

To the members and many friends of our Nature Guardian Club:



THE WHOOPING CRANE
(GRUS AMERICANA)
One of the rarest of all North American birds, the beautiful Whooping Crane is probably on the verge of extinction. No one really knows how many of these birds are left. The above specimen was shot by mistake by a hunter at Gueydan, Louisiana. It was mounted by Ambrose Daigre, Departmental Taxidermist, and is now on Exhibit in the Department of Conservation Museum, 237 Royal Street, New Orleans, La.

Let us all join together and congratulate our new Governor and Lieutenant Governor, His Excellency Richard W. Leche and Honorable Earl Long. May God bless and keep these men to carry on the great work that they have in view for the good of the people and the State of Louisiana. Here's to our Commander-in-Chief, the Honorable Robert S. Maestri, who is Commissioner of the Conservation Department of Louisiana and head of our great Nature Guardian Club. Mr. Maestri has done more for conservation than any other commissioner in all Louisiana history. He has put a stop to the slaughter of home and migratory birds. Unscrupulous hunters never obeyed hunting season orders until Colonel Maestri was appointed to this post. He soon got conservation under his jurisdiction, and if our feathered friends could talk they could not thank their faithful friend, Colonel Maestri, enough.

We'll keep up the good work and maybe some day we shall meet these good men and shake their hands. Good luck to them!

From three Club members,

PATRICK, ANTHONY AND GERALD.

I have a letter from Charles Shick, Alpha Gamma Rho, State College, Pa. He says:

DEAR EDITOR:

I have always been a great lover and admirer of the beauties of Nature. I am at present taking a course in conservation at Pennsylvania State College. I expect to devote my life to work in this field.

Some years ago I had the pleasure of passing through your beautiful state, which I found had its own beauties. I shall never forget the picturesque cypress trees that were so characteristic of Louisiana.

Since I am interested in all Nature, I would like very much to become a Louisiana Nature Guardian. Please send me an application blank.

Sincerely yours,

CHARLES SHICK.

Of course, we are happy to make Charles an honorary Guardian. We wish him much success in his chosen work.

Edna Dufrene, of Allemands says:

I'm eleven years old and in the fourth grade. I am sending you one of my little poems:

DEAR VIOLET

Dear little Violet
Don't be afraid,
Lift your blue eyes
From the rock's
Mossy shade.

All of the birds
Call out of the sky.
May is here waiting
And here, too,
Am I.

And a REAL poem it is!

Our faithful Guardians from Franklinton, Louisiana, are still zealously carrying on! Read this:

DEAR EDITOR:

We thought we would tell you about our lovely Nature Guardian program, which we gave in our

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school last week. The subject of our program was "Trees" and "Wood Folk". Mrs. Love trained us all. We two girls gave "Salute to the Trees," by Henry Van Dyke. Some of the little ones gave the playlet "The Triumph of the Trees". Their costumes were very pretty. We had many other lovely numbers. We are all trying to live up to our Nature Guardian pledge.

Last fall we had a program on birds. This spring we are planning to have one on wild flowers. Mr. M. J. Sylvest, our principal, always cooperates with us in our programs and crowds all the school children in the auditorium to see them.

Lovingly,
DOROTHY AND VIRGINIA.

I think Mr. Sylvest and Mrs. Love are splendid to help you Guardians so much, don't you?

Just one more letter and we must say "Goodbye" for this time.

New Orleans, La.

DEAR EDITOR:

I wish to become a Louisiana Nature Guardian, so please send me an application blank so that I may join the Club that all should belong to—The Louisiana Nature Guardians.

Yours sincerely,
JOSEPH BECHTEL.

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YOUNG HUNTER

The *Maryland Conservationist* reported that:

"Mr. Clarence Deneen of Hancock, Washington County, Md., is the only resident who has passed his 100th birthday, who procured from the Clerk of the Court of Washington County on September 14, 1935, a hunting license and went afield on the opening day of the season, September 16, hunting squirrels. In spite of Mr. Deneen's advanced years he is still an expert shot, but in recent years his manner of hunting squirrels is to occupy a stool under some favorite hickory-nut tree, and thru this method gets his squirrel without wasting many shells.

"Hooray, for Mr. Deneen, and may he live many years to enjoy the great out-doors."

THE PELICAN

Above the countless streams and silent seas,
Thy great form soars, then suddenly it sweeps
To seize its prey and rise upon the breeze
To airy heights amid the cloudy steeps!
Upon the ground within thine humble nest
Two eager, hungry fledglings wait for thee.
Within thy beak is food, and with thy breast
Thou shelt'rest them, O fisher of the sea!
Thy solemn mien, thy coat of somber brown
Belie thy love of friends and joy in life,
Thine industry, thy care of young, still crown
Thee, benefactor, shield, in time of strife!
In Louisiana, thou shalt ever stand,
A symbol of a rich and plenteous land!

—GRACE BORDELON AGATE.

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and Director, Research Division, Louisiana
Geological Survey

C. K. MORESI, *State Geologist,*
Louisiana Geological Survey,
Department of Conservation

PROGRESS REPORT ON THE GEOLOGY OF LA SALLE AND GRANT PARISHES

Detailed mapping of the geology of La Salle and Grant parishes by Dr. H. N. Fisk and assistant W. Levingston has been in progress since June first. A portion of June was spent in co-operation with Mr. John Huner, Jr., who is mapping the geology of the adjacent Winn and Caldwell parishes, in order to establish continuity between parish groups. Much progress was made in this detailed field work in La Salle Parish and certain points of general geologic interest are herein noted.

The outcrop of the Jackson Eocene in La Salle Parish may be divided into four distinct units each of which is very useful to the field geologist. These units correspond with the micro-faunal zones established in the laboratory. The different units were traced as far westward as north central Grant Parish and parts of the adjacent Winn Parish without any appreciable change, either in lithologic character or as to their relative position in the Jackson section.

The outcrop of the Vicksburg Oligocene heretofore mapped only as far west as Rosefield, Catahoula Parish, has been extended southwestward to near the boundary of Grant and La Salle Parishes. Some field data point to an extension of the outcrop, possibly to the Red River in northwestern Grant Parish.

The presence of at least five definite levels in the central part of the two parishes is of physiographic interest. These levels here occur at approximately 60, 80, 100, 125, 180 feet above sea-level. The three lowest levels border in varying widths, the present major stream system. They are best developed along the Little River in the vicinity of Zenoria and Georgetown. The lower levels are on the greater part "built" terraces and are covered by fill of loosely compacted sand which varies in thickness from 16 to 25 feet. Although well developed along Little River, they grade gradually into each other up tributary streams at distances varying with the length of those streams. Preliminary profiles constructed across the area indicate that these terraces may supply evidence for differential uplift to the north and east.

The 125 foot level is "cut" in an old upland on the Jackson and Vicksburg formations bordering the outcrop of the Catahoula Miocene sandstone. This level is less extensive than the one at 180 feet, which is the main stream divide of the region. The 180 foot level, on the Catahoula sandstone, is surmounted by low rounded isolated erosional remnants which occasionally rise 40 to 50 feet above the general level. Both the 125 foot and the 180 foot levels increase rapidly in elevation to the north and east, reaching maximum elevations in La Salle Parish at the Catahoula Parish boundary. No profiles have as yet been constructed across these levels, but preliminary examination indicates that they also give evidence for a northeastward elevation of the land mass.

LOUISIANA PETROLEUM STRATIGRAPHY

Dr. Henry V. Howe delivered a lecture on Louisiana Petroleum Stratigraphy before the Lake Charles Geological Society on July 6. The report will be included in the Handbook on Louisiana Minerals which will be published by the Department of Conservation.

LOUISIANA VICKSBURG OSTRACODA

Bulletin 7 of the Louisiana Geological Survey entitled "Louisiana Vicksburg Ostracoda," will be ready to go to press in August and should be available for distribution in the latter part of the year. It will be the largest report yet to appear dealing with Gulf Coast Tertiary Ostracoda. It has been prepared primarily, to provide paleontologic control for the mapping of the

Vicksburg outcrops across Catahoula, La Salle and Grant Parishes. It will contain pictures and descriptions of more than 60 species of ostracodes useful for micropaleontologic correlation. The report should be of much help in unraveling the subsurface picture of central Louisiana; an area that has received much attention since the discovery of the Bunkie or Cheneyville oil field.

MAPPING OF WINN AND CALDWELL PARISHES

Mr. Jack Huner, geologist of the Research Division, has begun the active field mapping of the geology of Winn and Caldwell Parishes. He expects to spend the entire summer in the field.

THE MAGNOLIA

O, fragrant flow'r of Louisiana land,
White petaled, gleaming in the morning light,
Thy perfume by the gentle zephyrs fanned
Makes sweet the plains and winding bayous bright.
A monarch art thou in the sylvan band!
Thy glist'ning leaves and trunk of strength and might
Clothe barren hill and shelter sparkling sand
Against the midday sun and chill of night.
Sequested in thy cool and leafy bow'r,
The mocking bird sings nightly to its mate.
Through majesty of form, thou speakest pow'r
Unto a people born of races great.
The purity and sweetness of thy flow'r
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—GRACE BORDELON AGATE.

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AN ULTIMATE LOUISIANA TITLE

The Honorable Edmund Seymour, President of the American Bison Society, and a gentleman long and deeply interested in conservation problems, has sent to the Louisiana Conservation Review the following interesting contribution which should certainly serve as a model of the ultimate in tracing any title of Louisiana real estate:

"A Louisiana attorney, hired to trace the abstract of a deed by a New York firm, went back to 1803, the year Louisiana was bought from France. As A. R. Horr tells the story, the firm wrote the lawyer he would have to trace ownership of the land farther back than that, which he did in due time, reporting by letter as follows:

"'Dear Sirs: I traced your deed back to 1803. Here it is complete. As you probably know, Louisiana was purchased from France in 1803. France had acquired Louisiana from the Spanish as the result of a successful war against the Spaniards. The Spaniards acquired Louisiana as the result of the explorations of an Italian named Columbus. Columbus was financially backed by Isabella and Ferdinand. Isabella and Ferdinand were given permission for Columbus' expedition by the Pope. The Pope is the vicar of Christ. Christ is the Son of God. God made Louisiana'."

"JUST A COUPLE OF DUMB FISHERMEN"

Two friends, Carl Newman and Julius Podesta were fishing one day and were having exceptionally good luck. Julius said to Carl, "Better mark this place Carl so when we come back next time we will know where to fish." Carl said "Alright, I've got it marked."

As they paddled back to shore, Julius said, "Carl, how did you mark that place?" Carl said, "I marked the spot on the boat alongside of where the fish were biting." Whereupon Julius stated, "Of all the dumb people I ever saw, you take the cake, how do you know we will get the same boat next time."

—*Contributed.*

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WHERE THE BIG ONES BEGIN

This lovely bass breeding pond at the Beechwood Fish Hatchery near Alexondria, Louisiana, contributes its full complement to the "Green Trout" population of the State. The operation of its five fish hatcheries is only one of the many activities that the Division of Fisheries of the Louisiana Department of Conservation effectively carries on to insure that the sport and commercial fishery resources of Louisiana are properly maintained and utilized.

Thos. J. Moran's Sons, 518 Bienville St., New Orleans, La.